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ANTHONY'S

Photographic Bulletin.

VOLUME XXIX.

1898.

EDITORS:

Prof. CHAS. F. CHANDLER, Ph.D., LL.D.

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PHOTOGRAPH BY E. B. CORE.

CHILD STUDIES.

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.

W. I. SCANDLIN.

VOL. XXIX. JANUARY, 1898. NO. 1.

SPECIAL LINES IN PHOTOGRAPHY.

WHEN a man starting out in a new venture has the strength of his convictions to such an extent that he deliberately "burns his bridges behind him," he is very likely to make a success of his mission. Mr. E. B. Core, of this city, is such a man, for after an experience of many years in general studio work in a western city, he came to New York to carry out a plan which, in his opinion, could not be as well worked out elsewhere, and has opened a studio with the intention of catering only to portraiture of children. This is a special feature of his plan and one which he will not relax, declining all work except that of the little ones. Mr. Core believes that no man should venture too far from the beaten track of his profession, unless he believes that he can do certain parts of the work, at least, a little better than any one else, and having come to the belief, in his thirteen years of studio practice in Cincinnati, that the artist who would succeed in portraying child-life in its countless changes of mood and temperament must make a specialty of this line, and realizing that the field where such special work would thrive must be in some such city as New York, he boldly took the field and is fast winning an enviable reputation for his charming work. That all men might not succeed in this field goes without saying; but Mr. Core is one of those men whom children naturally take to, and their confidence is quickly obtained. This once accomplished, it is held, and the wee tot who has been to the studio once is anxious to repeat the visit, for the studio is really more a big play-house than anything else. Dolls, baby-carriages, express wagons, music boxes, and, in fact, evidences of a veritable toy shop are present everywhere, and as Mr. Core says: "The little folks own the house when they come here. They may have or break anything in the

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studio, except the camera and lens." These are sacred to his own use, and that they are put to good use is evidenced by the several illustrations that appear in this number of the BULLETIN. While the average operator dislikes to see children sitters because they take too much time, to Mr. Core time is no object, his first, last and only aim being "to get what he is after" and to this end all else must be secondary. "It is not to be supposed" says Mr. Core, "that as many sittings in a day can be made of children as of adults, and that the compensation must be greater is apparent."

Mr. Core's remarkable success lies in the fact that his child studies are characteristic and natural portrait-pictures filled full of life and animation, and reflecting the soul of the little one as certainly as they do the body.

Such a record as the above is but another evidence of the value of work in special lines. Doubtless other lines are yet unworked, and good men are to be found in the ranks to work them. To do it successfully, we believe that there must be first of all a natural adaptability of the one to the other, and, after that, courage and patience, combined with business methods, and a knowledge of all the details of one's work, will be found to be all-powerful.

TO FIND THE FOCUS OF LANTERN LENSES.*

EVERY user of a lantern should always know the focus of the lens he is using; he is then in a position to determine whether or no he can exhibit in a room so disposed that only a certain distance between lens and screen is available, and that he will be able by working at a certain distance to get a certain-sized picture on the screen. Thus, should the lens be too short in focus to suit the distance he must show from, the picture will overlap the screen, and too little of it will be seen. On the other hand, should the lens be too long in focus, the image will be too small and look very diminutive on the sheet, quite out of proportion in fact.

When showing lantern pictures, the size of image on the sheet or screen should be such that a margin of at least 6 inches on each side should be allowed. To find the focus of a lantern lens, use a slide having a mask 3 inches diameter, circular in form, and focus this sharp on the screen from a convenient but known distance, and measure the diameter of the illuminated circle or disc. Now multiply the distance by the opening in the lantern slide (3 inches), and divide this by the diameter of the illuminated portion of the sheet; the result gives the focus of the lens being used.

Example.—The exact distance from the sheet to lens is 12 feet, and the size of disc 9 feet, then

$$12 \times 3 = 36 \div 9 =$$

4 inches, and this is the focus of the lens.

Bearing this rule in mind one can easily at any time find out what lens will best suit any place he wishes to use his lantern in. For instance. The above lens—4 inches in focus—would not do for a 12-foot picture at 40 feet away; what then would be required?

Simply this— $40 \times 3 = 120 \div 12 =$

10 inches, must be the focus of the lens to use.

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* From *The Amateur Photographer*, December 10, 1897.

Items of Interest

THE Cheyney-Hood Photo Supply Company, so widely known throughout the country as being one of the oldest houses in Philadelphia, has removed from its old quarters at No. 910 Arch street to a new and spacious building at No. 1006 Filbert street, where they have at their disposal fully twice as much room as in their old quarters. The building is a five-story and basement structure covering 21 by 70 feet, and extending from Filbert street to Commerce street. It is well lighted and well adapted to this line of business. The Bulletin extends its congratulations, and wishes them the best of success in their new quarters.

* * *

Mr. E. O. Cockayne, of the Heliotype Printing Company, in a recent call, related an occurrence in connection with experimental work which, to the writer, was a new one, and seems to him of sufficient interest to be repeated. In the course of experiments with a colored screen, a portion of the screen was broken, leaving a ragged edge across the center of the lens, which, however, did not seem to show on the resulting negative any strong line of demarkation, as would naturally have been expected. This incidental result led to further experiments, in the course of which a screen was inserted having an edge bound with opaque paper, and the same absence of demarkation occurred in the resulting negative. Carrying the experiment still further, Mr. Cockayne used in front of the lens a piece of opaque card, cut from the center to the circumference of a circle, in the shape of a wedge, the circumference measuring about one-fourth of the entire lens circumference, and this opaque body placed in front of the lens seemed not to affect the result, except in the natural diminution of light.

The Bulletin would be pleased to know if any of its readers have noticed or investigated this matter, or anything of a similar nature?

* * *

Attention is called to the fact that at the forthcoming convention of the Photographic Association of Pennsylvania, to be held at Bellefonte, February 23d, 24th and 25th, a special class has been provided for photographers outside of the State of Pennsylvania. In this class but one portrait is needed for entry, and the prizes to be awarded are a solid gold and silver medal. Any information regarding entry, etc., can be obtained by addressing the Secretary, Mr. T. B. Clark, Indiana, Pa.

Professor E. C. Pickering, of Harvard, is to be credited with a feat in astronomical photography which has for a long time been considered next to an impossibility, in having obtained an excellent photograph of a meteoric spectrum, which is the first known to have been made. This photograph was made in Arequipa, Peru, on the 18th of June, 1897, at the South American station of the observatory. It was one of those lucky accidents that sometimes come to people, as thousands of plates have been exposed for the purpose of obtaining a negative of meteoric bodies, but without being fortunate enough to have a meteor cross the field of vision at the time of exposure. We offer our congratulations to Professor Pickering.

* * *

During the last few years, photography has made very important strides in its application to the work of the surveyor, the photo-theodolite having lately been largely used in this connection. The Surveyor-General of Canada, Mr. E. Deville, who is probably the most accomplished and experienced photo-surveyor in the world, is recorded as having plotted and surveyed something over 50,000 square miles by photography since he undertook the work. It seems to be "on the books" that the old system of chain and compass will be entirely superseded by the camera and lens in the near future.

* * *

We notice that the *Commercial Advertiser*, of New York, has fallen in line with many of the other daily and weekly papers, in that it has established a photographic department, to appear each Saturday, the first number of which bears considerable interesting matter, as do most of the earlier issues in such cases. It seems to be, however, an open question as to how long the large number of weeklies in the country which are now running columns of this nature will be able to find material of interest and value to their readers.

* * *

Certain experimenters in Europe have lately been testing the actinic power of the moon on dry plates, one authority having made the claim that the moon's rays possessed a quality akin to that of the X ray. Exhaustive experiments, however, do not seem to substantiate this claim. In this connection, an article on "Photography in the Open Air," by Mr. C. Ashley Snow, in Volume X of "The International Annual," is of especial interest, as, speaking on this very subject, Mr. Snow says: "I have often developed by the light of a full moon, and, arranging the plates in a row to await fixation, have never found a plate affected by this light."

This being the case, it is not to be wondered at that plates, wrapped in three thicknesses of sound black paper, refused to reveal a negative, even after an all-night's exposure.

DEVELOPMENT WITH METACARBOL AND RODINAL, AND A PERMANENT INTENSIFIER.

By H. M. Beeles.

[Reprinted by permission from *Photographic Mosaics*, 1898.]

THE basis of every photograph—the first principles, technically, on which its excellence depends—is the negative.

Every experienced operator understands that the production of a negative technically perfect begins with the seating, *i. e.*, locating of the subject under the light, and that the first essentials are proper posing, artistic lighting and correct timing of the exposure. Without these it is impossible to secure such results; and to do this so uniformly as will please your patrons and establish a wide reputation such as artists assiduously study and labor to obtain, sometimes through many long years, must be the ambition of every successful photographer.

However well all these points may have been attended to in the operating-room, the acme of perfection will not have been attained without correct development, and it is more particularly to this point that I invite your attention, because in recent years chemistry has added largely to the resources of darkroom work, and those who have failed to keep up with the procession have only themselves to blame if they find themselves far in the rear.

I cannot assume that what, in my experience, I have found most satisfactory to me will prove the same to all others, simply because we cannot all of us handle chemicals alike; but as I have reached a point higher in this line than ever I have before in an experience of a quarter of a century—a point that has certainly added dollars to my income, lessened my expense account and given me extreme satisfaction, while it has lessened my labor—I think I cannot do better than to record here, so far as a description can record, the facts that have led to these results.

For four years I used rodinal, because while it was not as economical as pyro, I could get more uniform results with it, and often save a negative that with pyro must have been discarded; but when a few months ago I began the use of metacarbol I found I had something better, because of the wider latitude of exposure permissible and the ability to modify the effects of light and shade by timing and development; but I further found that by a combination of rodinal with metacarbol I could secure some remarkable results.

Illustration: May, 6 P. M.; dark, cloudy day. Babe, three months old, from a distance; cannot come again. Did I try it? Yes, and got a good negative, too. How was it done? I will tell you: I put the chair in position and focused sharply on it, being sure it was in focus front and back, and using the same stop I am accustomed to use in a strong light. While the mother placed the babe in the chair according to my direction, I adjusted the plate-holder in the camera and removed the slide. Then I quickly arranged the dress, corrected the position, and saw that the hands were as nearly right as possible, asked the mother to step aside, whistled, making at the same time an exposure as short as possible with an ordinary time-shutter.

They placed an order for "half a dozen if proof is satisfactory." (When I heard from the proof the order was raised to a dozen, with the remark, "I presume we shall want more.")

The customer had gone before I took the trouble to develop the negative. With that I proceeded as follows: The plate was 6½ x 8½ inches. I placed 8 drops of rodinal in the graduate and added 2 ounces of metacarbol made up after the formula accompanying each package of the pulverized metacarbol powder.

The image began to appear in ten seconds (temperature of solution, 70° Fahr.), and in about three minutes development was complete—no intensification necessary. The negative was well modulated and produced fine results.

Rodinal acts in a sense as an accelerator, but does not serve to add intensity to the high lights alone; it seems rather to produce a certain instantaneity to the effect of the exposure on the film, reaching deep into the shadows, and produces a marvelous amount of detail as unexpected as it is pleasant to the eye—that is, when regarded in the light of a previous experience with negatives taken under similar conditions.

The same experience is realized when you may have a group to take at an unseasonable hour, or in a weak light, or with a slow-acting lens; but with a normal light the rodinal will not be required; indeed, you can use one-half old developer to advantage with an ordinary exposure.

The printing quality of the negative is unsurpassed, and will compare favorably with that produced by any other agent, and I regard the production of metacarbol as a boon to the fraternity. Nor does its power or usefulness cease when you no longer desire to use it as a developer.

Every photographer will occasionally have a negative with all the elements of excellence except strength. Such negatives must be discarded or strengthened—*i. e.*, intensified.

In this case proceed as follows: Wash the negative thoroughly to eliminate all traces of hypo, then lay in developing tray and pour over a solution of 1 part bichloride of mercury, saturated solution; 2 parts of water.

Allow the negative to remain, gently rocking the tray, until sufficient intensity is obtained; then wash thoroughly and flow over the negative:

Water	4 ounces.
Old metacarbol developer	4 drams.

Wash thoroughly and dry. If on inspection you find your negative to be too weak you may repeat, and continue to repeat, until you get the proper strength.

Such intensified negatives, if properly washed, are entirely permanent, and print with the brilliancy of a perfect negative that required no strengthening, which cannot always be said of some other methods; but, of course, you must use judgment in intensification the same as in developing. You can intensify in daylight, if you choose.

INTERIOR PHOTOGRAPHY.

By E. J. Prindle.

AFTER the amateur has satisfied himself at snap-shot and out-of-door photography, he is apt to try his hand next at interior work. This is much more difficult than exterior photography, because it requires so much greater skill to correctly estimate the exposure, and because it requires care to secure an even lighting.

In the matter of exposure here and elsewhere, the writer has found it a great aid to accustom himself to recognize the amount of light on the ground-glass that will act on the plate in a standard time, say, two seconds, and calculate the exposure of the stop to be used, from that of the stop which gives the standard illumination. A stop that has twice the diameter of opening of another will allow the light to act in one-fourth the time, and with three times the opening the exposure would be one-ninth that of the smaller stop.

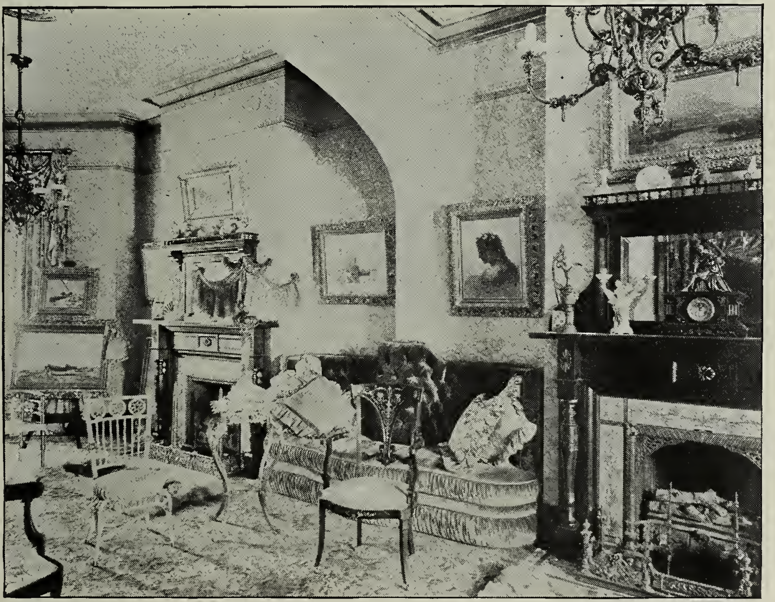

Fig. 1.

The simplest interior one can have to photograph is a side or corner of a room that is well lighted from the opposite side. Such an interior presents no difficulty, except the question of exposure.

The rooms which are the subject of Fig. 1 form a long double parlor that is lighted from the opposite ends by bay windows. A time of day was chosen when the sun was not shining directly into either window, and the shades were well raised at both ends of the parlor. The camera was stationed in a doorway leading into the hall, so that it might be as far back as possible to include the greatest possible field of view. This picture was taken in June, on a Seed's "26 X" plate, in two minutes, using the stop *f*/45, *i. e.*, a stop having a diameter that is one forty-fifth of the focus of the lens.

The second photograph represents a suite of rooms on the first floor of a city house, having, as usual, only front and rear windows. The stairway is at the center of the house, and is lighted by a skylight. A position was chosen from which all the rooms and the hall could be seen. The shade of the window in the farther room was drawn, to prevent halation or spreading of the light from the window; and the front door was opened, to light the hallway that is seen through the door to the left. The exposure was two and a half minutes, with stop *f*/64 on a Seed "non-halation" or double-coated plate. A double-coated plate, beside reducing the danger of halation, allows much greater liberty in exposure.

It is best to select one maker's plates, and, as much as possible, one grade of his plates, and to use them always. When the make of plates is changed, a new element of uncertainty is added to the already difficult problem.

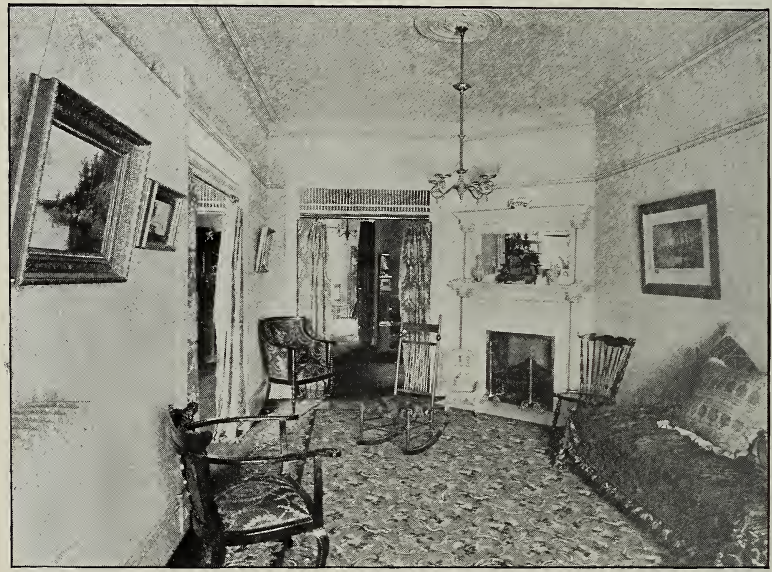

FIG. 2.

Wide-angle lenses, the lenses most used for interior work, require a small stop for good definition, and on a cloudy day one's patience is apt to be exhausted in waiting for the exposure to be made. I took a photograph on a dark, cloudy day, and, as it was only one of several, it was particularly desirable to hurry the matter. It was done by using stop *f*/16 for two minutes; and then, while the cap was replaced, stop *f*/64 was put in place, and another exposure of one minute followed. The plate, as before, was Seed's "non-halation." The large stop served to impress the outlines and give fair definition, and the smaller stop produced all the fine definition that was desired. The exposure was thus made in three minutes, instead of requiring thirty-three minutes, as it otherwise would.

The advantage of the double-coated plates is seen in the photograph which is Fig. 3. A large window here occupies a prominent place in the picture. The light-green shade was drawn down, and this reduced the danger of halation to a safe degree for double-coated plates. If the

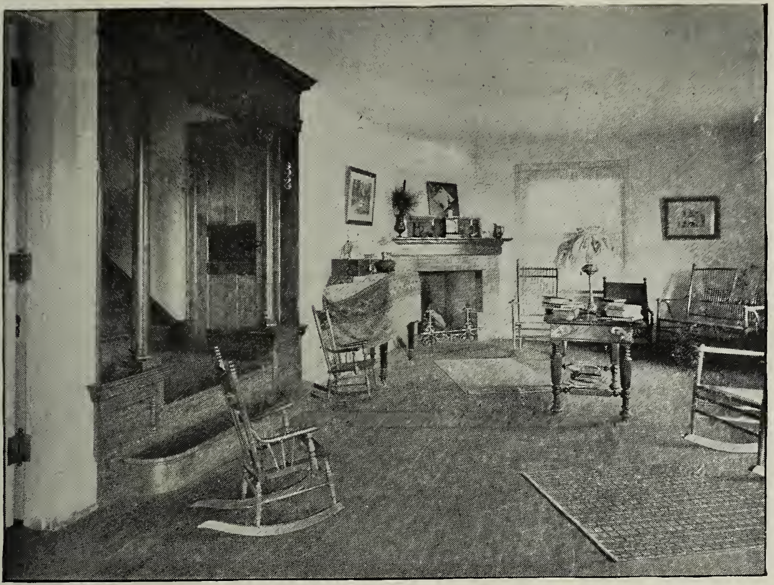

Fig. 3.

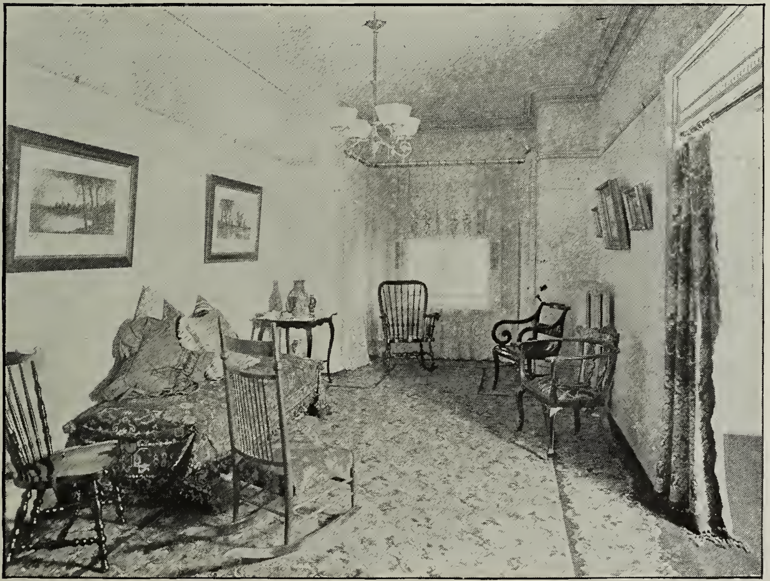

Fig. 4.

blinds had been closed as well as drawing down the shades, a dark, gloomy effect would have been produced. Such plates are also useful in photographing interiors having stained-glass windows.

In case the best possible light from the window is not satisfactory, or where there are dark corners, the flashlight can be used to advantage, and it is possible to get pictures by its use that can only be distinguished from those taken by daylight by the way in which the shadows fall. Where a room is lighted only from one end, and it is wished to include that end in the picture, it can only be done by flashlight. The room represented in Fig. 4 is such an one. The attempt was made here to give the natural effect of the light coming through the windows. To do this it was necessary to remove the lens cap, ignite the flash powder, and replace the cap before there was time for halation to show itself around the windows, and to use a double-coated or a "backed" plate. In order to save flash powder, the largest stop which will give good definition should be used. In this case the stop was *f*/22, and the charge 1 ounce of flash powder. The secret of success in using flash powder is to use large charges. Care must be taken to place the flashlight so that it will not be reflected into the lens from mirrors, picture frames and polished woodwork.

OBITUARY.

MR. JAMES PERRY ELLIOTT, of Indianapolis, Ind., died very suddenly at his home, November 19th. Mr. Elliott had been an active photographer in Indianapolis for thirty-four years, having followed the same business in other cities previous to going to Indianapolis. He was well known in the profession, and his death will be widely felt.

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OUR sincere sympathy is extended to Mr. C. W. Motes, of Atlanta, Ga., in his bereavement, Mrs. Motes having passed away on the 11th of December, from paralysis, brought on by a severe fall which she received two years ago.

THE BULLETIN would acknowledge with thanks the receipt of an invitation to attend the reception given by Messrs. G. Moses & Son, of New Orleans, La., on the occasion of the opening of their new studio on the 18th of December. We understand that the occasion was one greatly enjoyed by those who were present, and regret our inability to have been with them.

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MR. M. P. LONG, of Marshfield, Mo., writes: "If I only took one magazine, the BULLETIN would be my choice."

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Photograph by E. B. Core.

CHILD STUDIES.

NOTES ON CARBON PRINTING.

A WRITER in *The Photographic News* of December 3, 1897, speaking of the deserved popularity of carbon printing in England, as evidenced by the large number of these prints to be seen in the several exhibitions, proceeds to say in part:

"The choice of color at one's command in the carbon process is an inestimable advantage, as we are not then bound down to one particular monochrome, but can choose a color that best suits the subject. It is our intention in this article to explain the necessary manipulations for working this process, and, though the same has been written times out of number, yet there is in the present day a fast-increasing army of amateur photographers, many who are in complete ignorance of this, the most beautiful of all printing processes, and to these we would recommend the perusal of these instructions.

"The carbon process is based on the action of light on some organic substance with potassium bichromate or potassium ammonia. The paper used for printing on is called the "tissue," and is paper coated with gelatine and some pigment for coloring purposes. The following tissues are made commercially: engraving black, red chalk, standard brown, sepia, standard purple, portrait brown, green, warm black, and transparency tissue for lantern slides. The red chalk gives a Bartolozzi red effect. Most of these tissues are kept ready sensitized, and may be had either in cut pieces or in rolls; all these tissues are kept in stock in an insensitive condition, and require sensitizing before they can be printed from. There are two methods of obtaining a print by the carbon process—viz., single transfer and double transfer. When a print is taken by the first method the picture is inverted, *i. e.*, the left becomes the right, and the right the left. For a lot of subjects this is no disadvantage, but for photographs of buildings it is obviously useless, as the result would be entirely wrong. In such cases one has to resort to the double transfer.

"It is possible to obtain an inverted negative by detaching the film from the glass, turning it over and making it adhere again to the glass; but this is not to be recommended to beginners, as the film when off the glass is very fragile, and unless great care is taken will break to pieces. This transferring business may puzzle the beginner, but can easily be understood when we explain that, on taking the print from the frame, it is not treated as a silver print, but is placed in contact with another piece of paper, and then the original support is stripped away, and the development commences on the back of the sensitive surface. Here let it be stated, that we would recommend the tyro to sensitize his own tissue, as the trouble is not at all excessive, and the advantage lies in the fact that one has not to use up a certain amount of tissue in a given time, for, as we have said before, the sensitized tissue will only keep a fortnight. If one has, however, a number of negatives to print from in the one pigment, it then saves trouble to buy it already sensitized. The following will be found an easy and effective way of sensitizing the tissue, which is bought, as we have explained, all ready (if insensitive) for sensitizing. If sensitized, for use:

"Take a pint jug, and make a small muslin bag; in this bag place 1 ounce of bichromate of potash, which may be obtained from any chemist for a penny, and let the bag with the salt in it about a quarter of the way down the jug, and suspend it there by means of a string. Then fill up the jug with water, when the bichromate of potash will be found to dissolve readily. If hot water is used, the salt will dissolve better, and by the time the solution is cool it will be ready for use. The next step is to sensitize the paper, which is done as follows: Pour the bichromate of potash solution in a dish about 2 inches deep (an ordinary developing dish will answer every purpose), immerse the tissue in the solution, removing any air bubbles that may settle on the surface with a camel's hair brush, and leave it in the solution for three minutes. Now take it out and let it drain for a few seconds, and lay it face downwards on a piece of glass, previously cleaned and polished with powdered talc, squeegee it into contact in the same way as you would treat a silver print, then, when quite dry, strip it from the glass, and it is ready for printing from. Before placing the tissue in contact with the negative, we must give the latter a "safe edge," which is done by sticking opaque paper on the edges of the negative. This precaution will save much trouble afterwards. As we cannot judge of the progress made in the printing as we can with silver paper, we have recourse to what is termed a print meter, a very good and cheap one being known as Wynne's Infallible Print Meter. In this instrument there is a negative of a series of figures and letters, in front of which is a piece of zinc with various sized perforations, and in front of which again is a piece of opal glass.

"A piece of silver paper is placed in contact with the negative by means of a neat attachment, which enables the whole surface of the silver paper to be examined at one time. The negative to be printed from is also placed in an ordinary frame, and a piece of silver paper placed in contact with it; then both it and the print meter are exposed to the same light, and when the print is done enough, the print meter is examined, and it will be found that either one figure or letter is just visible. This forms the test number of that particular negative, and as carbon paper is nearly the same speed as silver (it is, in reality, slightly faster, so that if eight came out as the test number for silver paper, six would be enough for carbon), it follows that when the carbon tissue is exposed to the same light as the print meter, then when the test number is just visible in the meter, the print is done. We now come to the developing. For this we require the addition of, for single transfer, single transfer paper; for double transfer, single transfer paper and a final support. We will suppose we are only doing a single transfer. Take a piece of the transfer paper and place it in cold water, also take the printed tissue and place it in the same water; remove air bubbles from both surfaces. It will be seen that the carbon tissue curls up. When it has gone flat again, bring it in contact with the transfer paper, lift both out of the water, and squeegee them into contact with each other, and place them between blotting paper under some heavy weight. After about a quarter of an hour take them from under the weight and place them in a basin of warm water of about 150 degrees Fahr., and leave them in it till you perceive the pigment oozing out round the edges, then lift up a corner and skin the paper off, leaving the picture on the transfer paper. In the case of single transfer this forms the final support, and so may be treated as a print on any other paper, trimmed, etc.; but when using the double transfer method we have to transfer it from this support on to another, and so get no inverted image. We proceed in exactly the same way as for single transfer, only we previously coat the transfer paper with a coating of wax (yellow resin 6 drams, pure beeswax 2 drams, turpentine 1 pint), pour a few drops of this on to the paper, and rub in over the surface with a piece of flannel; when dry, polish it by using another piece of flannel, and by giving it a circular motion all over the paper. Then proceed and get a single transfer print in the way we have described above. The final support on to which our picture is transferred is to be obtained commercially (as is the single transfer paper), and the only thing necessary to do is to place it in a 2 per cent. solution of alum for about half an hour. Then take one of your prints and place it and a piece of final support together, but not in contact, into a basin of warm water of about 70 degrees Fahr. Bring them together under the water, lift them up, and squeegee them together between blotting paper. Then hang them up to dry, and when they are quite dry the temporary support may be stripped away, leaving a brilliant picture on its final support. If it should appear dull, a few drops of methylated spirit applied to the surface and rubbed in will make it all right. The temporary support needs only to be waxed again, when it will be ready for use.

"By using fine opal as a temporary support, waxing it, and treating it in the same way as one would a paper support, a very pleasing matt surface may be obtained. We forgot to mention that in using the single transfer process, after development has been completed and stopped by placing the print in cold water, it is then necessary to place the print in an alum solution, to get rid of all the bichromate salt, and thus the yellow stain; the print then only needs rinsing under a tap, and then may be hung up to dry. For those who seriously consider taking up this charming process we recommend the perusal of Mr. Wall's book on "Carbon Printing," price 1s., or else the Autotype Company publish a handbook containing full instruction for working their tissues, etc., price 2s. 2d. Both books will be found excellent. We might, perhaps, mention, as a final inducement, that carbon prints are the most permanent we know, and that owing to the large range of color obtainable, one can copy studies of some of the old masters, and reproduce them in their original colors."

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WRITING of "THE INTERNATIONAL ANNUAL," Vol. X, for 1898, Mr. James Reüel Smith says: "It is decidedly, in every respect, the best annual of the year."

OBJECTIVES FOR HAND CAMERAS.

By Dr. A. Miethe.

Written for *The International Annual* but received too late for publication.

IF sharp pictures, fit for enlargement, are to be obtained with a hand camera, the ordinary aplanatic objective as generally found in the cheaper kind of that class of apparatus should not be used, although it may be satisfactory for general work. If pictures made with these lenses are used for lantern slides, it will be seen that the sharpness in the center is not sufficient, and that the sharpness towards the edges of the plate is very unsatisfactory. This defect increases still more if enlargements are made, resulting in pictures without relief or effect and with dead surfaces. Suitable objectives for hand cameras should give absolute sharpness from edge to edge, so that nothing is lost on the picture. For a quarter size plate (the ordinary size of the hand camera) we require an aplanatic lens of at least 22 centimeters* focal distance, with a light force *f*/8.

The modern anastigmatic objectives are of equal capacity and give a corresponding picture angle, at a focal distance of 12 to 15 centimeters.† I would always prefer the 15-centimeter focal distance, this being about the shortest focal distance at which a sufficiently good perspective is obtainable.

As suitable objectives, I might mention first the symmetrical anastigmats of a light power not under 7.7, and second, the unsymmetrical anastigmats with equal light force.

Of the former instruments two types may be distinguished, those with three and those with four lenses. Both are optically of equal value. The combination with four lenses offers the advantage of being single objective. Among the three lens instruments, we can distinguish the double anastigmat and the collinear; the former with the largest light force of *f*/7.7, the latter with double the light force, of *f*/54. For all purposes where views are taken with moderate light, the collinear is the most suitable. The collinear of Series II, No. 3, with its full opening, that is, the light force of a portrait objective, depicts the whole size of the plate sharply, and gives, even under unfavorable conditions of light and extremely quick exposure, sufficiently lighted negatives.

The unsymmetric anastigmats (Zeiss anastigmat) are also well suited for the hand camera, particularly for those photographers who want to make use of a pretty large picture angle, and who would select therefor not the 15-centimeter but the 10 and 11-centimeter focal distance. The small Zeiss anastigmats of Series II of the latter focal distance satisfy these requirements best, although a small zone remains between center and edge which does not show the full sharpness. A Zeiss anastigmat of 15 centimeters focal distance is not, however, equal to the collinear for the quarter plate, the field not being flat and the sharpness not reaching sufficiently toward the edges.

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* =8.6 inches.

† 4.7 to 5.9 inches.

The latest novelty in hand camera lenses is to be found in the stigmatic lens constructed by J. H. Dallmeyer, which deserves attention and recommendation. This lens resembles the double anastigmat, although the rear combination is not sealed, and on this account allows a greater liberty of construction and a better correction of the spherical deviation for larger lens surfaces. The anastigmatic correction is a very good one, though the flatness of the picture field is, perhaps, a little less than with other lenses of recent construction. For views taken with the hand camera these lenses are very suitable, and, besides this, have the essential advantage for the amateur with moderate means, that, being single lenses, they are of different foci. By using the lenses singly, two different landscape lenses will be had, so that in all three combinations, three different foci are to be had in the one lens. The landscape lenses give very good sharpness with a small diaphragm, but stopped way down would be lacking in light for hand-camera work, excepting under brilliant lightings.

Translated by

Henry Dietrich.

IS PHOTOGRAPHY A PLAYED-OUT PROFESSION?*

We are indebted for the following remarks to a well-known professional photographer:

This question is so often asked and so frequently answered in a dismal affirmative, that a few notes from a "busy man," who thinks professional photography a good thing, may make a welcome change.

The "busy man" need not be particularized; he is here, there and all over the country, and anything but the *rara avis* a recent correspondent to the *Journal* would have us believe. He can be found in plenty of towns besides the one in a corner of England, but if he is not heard of by all the world and his wife, it is because success tends to make men quieter than the want of it. The voice of wailing is not the only accompaniment to photographic enterprise by a very long way. And who are the men who succeed? Surely the hard workers—men who, from the start of their career, have realized that professional photography is not a pleasant little hobby to be toyed with, but a downright absorbing pursuit, which needs all the personal tact, good taste and concentration of business energy that can be thrown into it to insure success.

The world is full of photographers, but the number of men who appear to be in earnest is comparatively few. Is this not even borne out by a cursory glance at professional windows and show-cases!

How many are really up-to-date displays of high-class photography? How many advertise, and how many more discount the workers within?

Yet the show-window ought to be a potent influence towards success. The public is ever watchful; it notices instantly a happy pose, a clever example of lighting, an artistic setting of a portrait. It recognizes the finer taste which refrains from placarding "Art Studio" in gold letters all over the house front, but which reveals the fact in good portrait studies behind the plate glass. And the plate glass is kept clean—always!

Then the "busy man" at the start showed common sense. He never believed Dame Fortune would arrive through a grubby baize door on the invitation of "Please walk upstairs." He always credited her with a taste for light and pleasant places, and a dislike for dark stairways and mystery. Choosing carefully his position, he thoughtfully expended capital in fitting up an establishment, which, if not remarkable for lavishness, was noticeable for its style and regard for the canons of good taste. He remembered the value of first impressions.

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* From *The British Journal of Photography*, November 12, 1897.

The "busy man," as a rule, pins his faith to the educated middle class of society. The exclusive aristocratic connection may be all very well for a time, but it tires of its pet photographer (either man or woman), or it may be *vice versa*.

He thinks men and women of the professional and middle walks of life are generally more considerate, easier to please, and the "busy man" is likely to remain so for a longer spell of his active life in their midst than among the restless votaries of fashion, ever panting for change.

And, operating in his own studio, the "busy man" is, to a great extent, the arbiter of his business fate.

It is there success is chiefly wooed and won, his technical and artistic skill, courtesy, patience, knowledge of human nature, produce an effect upon his clients just at the time when their nervous impressionability is most highly excited.

He does not devote hours to posing the "good subject," and dispatch the less favored one with more or less perfunctory attention. Good looks and style are the exception, and the foundations of his business must rest upon a broader base than a few fine specimen portraits.

And the children! With them the "busy man" is just in his element. He is once again the schoolboy, and, forgetting his own immediate personal cares, enters with all his early enthusiasm into the art of make-believe. Who shall say the innocent, genuine laughter of the youngsters is not in itself a delightful reward for such efforts? But the man who considers photographing children in the light of a nuisance misses the most interesting phase of studio work, and has probably also forgotten that he who wins their hearts wins more!

Simplicity of pose, naturalness of expression, these qualities are graven on the mind of the busy man as the chief characteristics his photographs must bear. However carefully balanced his lighting may be, however good the technical character of the negative, a faulty expression will spoil the whole work. There are operators who worry their subjects by incessant alterations of pose, by constantly experimenting with the blinds, by an uncertain, indefinite method of procedure which is disconcerting to their sitters and confusing to themselves.

The majority of sitters, in a few minutes of conversation, seem to suggest, by their own attitudes, the most suitable postures for photography, and the cue thus given should be followed out without disclosing to the subject the complete intention in the mind of the operator, and with an entire avoidance of that rough-and-tumble treatment many studio workers are wont to indulge in.

Then the "busy man" taboos the "fussy" portrait, for he has found his sitters and their relatives desire the powerful likeness which the impressionistic photograph does not give, and, however much he may be interested and amused by the more or less virulent discussions on "High Art Photography," and by the pictorial eccentricities perpetrated under her name, he leaves the task of educating up an apathetic public to men who need not be busy, and who affect to despise the test of commercial success.

And the busy man's studio is innocent of the "patent combination posing chair," and all the other paraphernalia of so-called photographic accessories. He believes such things belong to a bad period of inartistic sentiment, and he strives to make the studio look as any room in a well-appointed private house might appear.

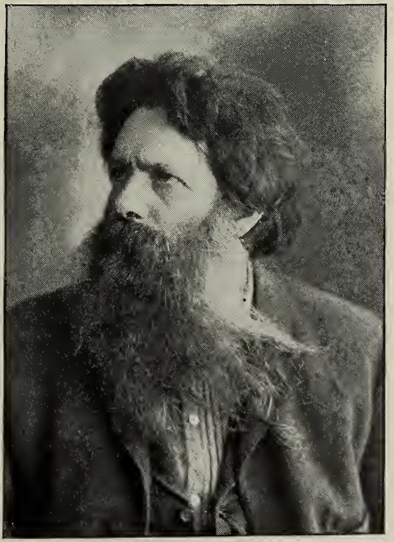
His backgrounds are remarkable for their extreme softness, for, however distinct he may desire the feature of his portraits to be, the backgrounds are the merest "suggestions," and it is evident he is at pains to pose his sitters a long way in front of the cloth. The majority of his portraits show a simple light and shade, or cloud effect in the backgrounds; but when the painted "scene" is used, there are no watermills, or châteaux, or grand staircases or fearful and wonderful plants disputing with his sitters the right of first notice.

And the studio is a comfortable and interesting place to be in, properly warmed and ventilated, and with much to attract the eye and mind from those necessary evils of photography, the camera and the head rest.

Then the retouching! This is a tender subject with the busy operator, and he is sometimes at loggerheads with the retouchers. "Why will they remove so much of the natural modeling he has been at such pains to obtain?" "Why should there be so much destructive, instead of constructive, work?" "Why should the features be penciled down into an intolerable monotony of meaningless smoothness, with a violent light, ruled down the nostril?" And he knows they will bring him plenty of resittings unless he personally looks over and alters much of the finished work. So, with a finely pointed piece of india rubber, he clears the often-filled-up detail under the eyes, and in the wing of the nostril, and puts in the high lights that may have been flattened out, so that his subjects are a little more human, a little more as he remembered them when before the camera.

Then, when the season is over, the "busy man" does not become panic-stricken, and send invitations for free sittings broadcast over the country for an album of medical, or clerical, or legal somebodies (or nobodies) to prepare for some great society or other. He thinks such a policy suicidal, and only calculated to bring contempt upon professional photographers as a body. Nor does he make up collections of portraits in which, by these means, he has secured a copyright, and hawk them round to the public illustrated press. He thinks this is playing professional photography rather low. And he waits a few weeks to see the man who works behind the "grubby baize door," doing the same thing until the whole community is wondering "what is in the wind," and what new "have" those queer photographers are trying to get up.

No! If the fog enshroud the studio, and the public interest in photography seems for the moment to wane, he knows the sun will shine again, and he knows that, until something better takes its place, the demand for portraits will ever increase, since it is created by an intense human need; but in the fierce struggle of life he realizes that two things are necessary to keep him a "busy man;" one that he shall make and keep the public respect for his profession, and the other to remember that in all his business troubles *labor omnia vincit.*



From Photograph by Köppleman, Chicago.
NEGATIVE ON CLIMAX PLATE.

PHOTOGRAPHICAL SECTION OF THE AMERICAN INSTITUTE.

AMONG the many features of the meeting of the Photographical Section of the American Institute, held on December 7th, may be mentioned several of more than usual interest.

Messrs. Riley Brothers exhibited their fine series of Niagara Falls slides, made during the last summer. The negatives for many of these were from points well known to all tourists, while others were from points but recently accessible, showing unfamiliar beauties of the Falls and Rapids.

Mr. H. Snowden Ward, editor of the *Photogram*, London, England, exhibited the photo-theodolite of Mr. Bridges-Lee, a new surveying instrument, which may well be called one of the most wonderful pieces of apparatus yet devised for the scientific application of photography. While Mr. Ward described the construction of the several parts, the accuracy of the surveys already made by its use, and showed upon the screen illustrations of work done with it, he was often interrupted by hearty applause from the large audience present. With this instrument it is claimed that one-third less time is required, and greater accuracy secured, than with any other.

Mr. Ward also exhibited a camera having a rising front, constructed upon the principle of the rolling blind, and so planned that the lens could be placed opposite any part of the plate, even to the extreme corners, and securely held in position. Mr. Ward also exhibited and explained two forms of apparatus recently devised by George Oliver, M. D., of London, for determining the constituents of blood by reflected and transmitted light.

The projecting lantern being again lighted, Mr. Ward put upon the screen a series of flower studies by Mr. H. T. Malby, and about one dozen illustrations of London by night by Mr. Paul Martin. These last slides were a revelation to many present, showing, as they did, the capabilities of photography when practiced by a masterly hand. In some of the most brilliantly illuminated scenes there was not even an indication of halation around the gas and electric lamps, and all prominent objects were plainly shown. Mr. Ward stated that the best time for such night work had been found to be immediately after a rain storm, as the wet streets and sidewalks then reflected much more light than when dry, and exposures of from fifteen to forty minutes gave good results.

The general meetings of the Section are held on the evenings of the first Tuesday of each month (except in summer), and are free to all who are interested in photography. M.

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All copy for February issue must be in our hands not later than January 15th.

In a pamphlet issued by the Autotype Company, written by Mr. Valentine Blanchard, we note the following which may be of interest to lantern slide-makers :

" It is surprising when it is remembered that snap-shot pictures are produced by the million, that greater use is not made of the carbon process for the production of lantern slides. All that is needed is to use good thin glass on which to transfer the picture, and the result, if only ordinary skill be employed, should be a lantern slide far exceeding in transparency those usually produced by bromide plates. An important fact should not be forgotten, the exact tint of the slide can be determined beforehand, and thus the artistic feeling of the photographer can be more fully expressed in his work. As the slide can be reversed in the lantern, there is no trouble of inversion, and the scene can be shown correctly to the audience."

substitute for the hyposulphite of soda.

But another circumstance might render these advantages illusive. If alkalies, for instance, carbonate of soda, are added to the solution of chloride of silver in thiosinamin, a black sulphate of silver will precipitate. Alkalies produce, therefore, the sulphur toning in thiosinamin, which is caused by acids in hyposulphite of soda.

To find out if this peculiarity of the thiosinamin would cause the spoiling of the picture, I carefully preserved those made four years ago. They had been fixed and toned together in a mixture of thiosinamin and chloride of gold. They were not thoroughly washed, but had been rinsed only twice in water.

These pictures have remained unchanged to the present day. The conditions as to durability are undoubtedly more favorable than with the pictures treated with hyposulphite of soda.

The only obstruction to the introduction of the thiosinamin from a practical standpoint is its extremely high price of 50 marks per kilo.

The difference in its price and that of hyposulphite of soda is balanced to some extent by the use of a smaller quantity. It is certainly more economical and will not spoil so easily as hypo. Valenta has determined that in 100 cubic centimeters solution of the various concentrations, chloride of silver will dissolve as follows:

	1%	5%	10%	15%	20%
Hyposulphite of soda	0.40	2.00	4.10	5.50	6.10
Thiosinamin	0.40	1.90	3.90	....	....

I prepare a solution of 10 grams thiosinamin in 200 cubic centimeters of water and add 20 cubic centimeters of a 1 per cent. chloride of gold solution. The printed-out Aristo picture is placed in this solution without previous washing. In about ten minutes it will have a brown-violet tone, as otherwise obtained only with a separate toning and fixing solution. The pictures excel in having an unusual depth.

When the print has reached the desired tone, it is put into a water bath, which has been acidified by addition of a little citric acid or alum. This is repeated five times, and the picture is then finished.

This application of acidified water is much more advantageous than that of the ordinary water, which will always contain some carbonate of lime in solution. This might easily lead to a sulphurizing of the picture.

For the same reason it is to be recommended not to wash the prints before fixing. The acid which is generally contained in the emulsion paper is of advantage for this process.

For economical purposes, the picture may be liberated first from superfluous nitrate of silver by washing, adding afterwards a little citric acid to the thiosinamin gold bath.

Bromide of silver does not dissolve as easily in thiosinamin as in hyposulphite of soda.

Translated by
Henry Dietrich.

PAPER FOR ENLARGEMENTS.

A VERY simple method of preparing paper for enlargements is suggested by Herr Rehnert, who has used it for some time with excellent results.

Rives paper should first be immersed in a solution of

Magnesium iodide	10 parts.
" chloride	5 "
Alcohol	500 "

and after drying should be sensitized by floating on a nitrate of silver solution, 1 to 12, strongly acidulated with acetic acid; or the paper may be immersed in the silver bath. Silvering should be continued, however, until it has become quite white. Exposure should be made while the paper is wet, and development is effected with pyro solution, strength of 1 to 200. If greater brilliancy is desired, it may be obtained by first sizing the paper with a starch solution.

SUNLIGHT IN LANTERN SLIDES.

THE following article, by C. H. B., in *Photography* of December 16th, touches a subject of interest to many at this season of the year, and is so timely and practical that we beg to quote it.—EDITORS.

"It is a remarkable fact that, although in the matter of photographic prints the taste of both photographers and the general public has, during the past decade, been cultivated and improved in a very marked degree, the same thing cannot be said in the case of lantern slides. Improvement there has been, no doubt, but everyone who has attended many lantern-slide exhibitions must have observed how frequently the loudest applause is gained by slides that in their rendering of light and shade are but gross travesties of the original. Nothing resembling them has ever been seen in Nature by any one with anything like normal vision, or in anything approaching a normal state of mind. Were such monstrosities perpetrated in the form of large prints (small prints are not comparable with pictures projected on a screen) they would at once be scouted by every one possessed of even a modicum of taste, and that they should still be applauded when thrown on a screen may probably be regarded as but one more illustration of the strength of custom and use. Such slides are the survivors of the barbaric ages of photography, when any lantern slide, no matter how bad, was a source of wonderment and pleasure: when makers of lantern slides either knew no better, or were so little masters of their processes that they could do no better. The harshness of contrast to which we refer, is, we believe, commonly called "pluck," but if the word as thus used is meant to signify practically the same quality as the word "vigor" when applied to a painting or drawing, then we submit that it is altogether misapplied. The juxtaposition of large areas of tar with large areas of whitewash no more constitutes vigor than the juxtaposition of sky blue and magenta.

"The persistence of this apotheosis of tar and white whitewash is the more remarkable when we remember that Ferrier's slides always excited the keenest admiration, and if they possessed any one quality more remarkable than another, it was surely the perfection of their gradations and their freedom from harsh contrasts.

"Public opinion is, however, gradually being educated in this matter, as in others. It is coming to be recognized that a lantern slide may be vigorous and yet free from harsh contrasts. For our own part we agree entirely with our colleague A. P. when he says that a perfect lantern slide should have very little clear glass and very little complete opacity. In Nature, even in her strongest moods, there is gradation everywhere, and in a lantern slide representing Nature good gradation is equally opposed to hard contrasts on the one hand, and to flatness on the other.

"At the same time we are aware that no kind of lantern slide calls forth more general admiration, and rightly so, than one in which brilliant sunlight is properly represented. But such slides do not belong to the tar and whitewash order. Now we happen to be fortunate in having a certain number of slides of this character, but they do not form anything like so large a proportion of our collection as we should desire, and we have endeavored to ascertain by observation and comparison what are the conditions necessary for the production of slides of this kind, that is to say, slides which, while very brilliant on the screen, are quite free from the hardness against which we have been protesting. It goes without saying that there must have been bright sunshine in the original, and it will also be readily understood that, while it is sometimes possible to render sunlight successfully, even when the lighting of the object is inclined to flatness by reason of the absence of well-marked shadows, such rendering is much less difficult when there are broad masses of shadow to give contrasts.

"Examination of the slides themselves shows that in all the best of them there is very little clear glass indeed, and there is no point at which the clear glass occupies any considerable area. In other words, there are no distinct patches of clear glass. The "sparkle" is due to very minute points of clear glass forming, not the high lights, but only the highest lights in the midst of the high lights. Similarly, there are no distinct patches of complete opacity; detail is visible even in the deep shadows. It is well known to artists, but does not seem to be recognized by lantern-slide makers (1) that in almost any object that quantity of really black shadow is very small, and (2) no shadow appears to have any depth unless it shows some gradation due to partial illumination by reflected lights.

"We therefore venture to lay down as a general principle, that the proper rendering of sunlight in a lantern slide involves detail in the high lights and detail in the deep shadows. Absence of this detail means tar and whitewash, and not sunlight. The most brilliant effects are, of course, obtained when high light and deep shadow are in juxtaposition, but there must be detail in both.

"So much for the essential features (or what seem to us to be the essential features) of the slides in question. How are they to be secured?

"In the first place, the negative must have been fully exposed, and it is here, we fancy, that the cause of many failures is to be found. Sunlit views are so very brilliant that the temptation to give very short exposures is great, but the shadows are often very dark, especially when the sky is cloudless, and with short exposures it is either impossible to develop any detail in the shadows at all, or is practically impossible to get out the detail in the shadows before all the detail in the high lights has been lost. With sufficient exposure, on the other hand (two or three or four times longer than many people give), it is possible by proper development to get out the detail in the shadows, whilst the high lights are still sufficiently transparent to yield most, if not all, of their detail in the slide or print. The chief point in connection with the development seems to be to use a developer which contains a fairly large proportion of alkali, and not too large a proportion of the reducer, together with sufficient bromide to prevent any general fog. We cannot say, however, that we have found a small quantity of general fog in the negative to be fatal to the required brilliancy in the lantern slide; the chief danger is that the appearance of general fog leads to development being stopped before the detail in the shadows has acquired sufficient opacity to have any real printing value. If the general fog is allowed to become considerable, the difficulty of making brilliant slides from the negative is enormously increased. After all, what is wanted is the kind of negative that is most useful for all sorts of printing purposes, fully exposed and fully developed with detail of real printing value in every part of it, though necessarily more prominent in some parts than in others. Very many of the negatives that are produced are not of this kind.

"As regards the slides made from such negatives, we believe that here also the first essential is a full exposure, whilst the second is sufficient restrainer in the developer to prevent any trace of general fog. It does not follow that development must be slow, or of the type tending to give hard contrasts. Sufficient bromide, and not an excess of it, is what is wanted. How much bromide is sufficient depends, of course, on the nature of the plate, and on the nature and proportion of the alkali used. We may say that we have in many cases found it advisable to use a larger proportion of bromide than that given in the makers' formula; perhaps half as much again or twice as much. Given that this condition is satisfied, a fairly large proportion of alkali may be used, and is, indeed, desirable. We have, however, rarely found it advisable to use a larger proportion of alkali than that given in the makers' formula. Sometimes the proportion of reducer may be altered, but this is seldom necessary. When ferrous oxalate is used, the addition of the proper quantity of bromide is the main point, and it is more often necessary, in our experience, than is generally supposed.

"In all cases, however, although a properly exposed plate may be ruined by improper development, it is our experience that the exposure of the lantern plate is the chief factor in determining the quality of the result. It is in most cases under-exposure in the negative, or the slide, or both, that has to answer for the tar and whitewash effects.

"C. H. B."

NOTES FROM GERMANY.—ORTOL DEVELOPER.

By Dr. Eder.

THE chemical factory of J. Hauff in Württemberg, Germany, has lately placed on the market a new developing preparation, designated as a derivation of the orthoamidophenol.

Experiments have been made with the same at the Imperial Graphic Institute in Vienna by using the several mixtures in the following proportions :

Solution A.

Metabisulphite potassium	7.5	grams.
Ortol	15	"
Water, cold	1,000	cubic centimeters.

Solution B.

Crystallized sulphite of soda	180	grams.
Crystallized soda	120	"
Bromide of potassium	1–2	"
Water	1,000	cubic centimeters.

In winter time the bromide of potassium may be left out. For the gallery, mix 20 cubic centimeters of A, 20 cubic centimeters of B. For landscapes mix 20 cubic centimeters A, 20 cubic centimeters B, and 20 cubic centimeters of water.

The results of these tests demonstrated that this preparation, in comparison with the ordinary metol developer, offers certain advantages, the development of the picture upon bromide of silver gelatine plates by its application being less difficult because the picture does not appear so rapidly.

The application of bromide of potassium as retarder, which with metol is not very effective, can be made with good result in the ortol developer. The high lights are much better covered by using the new preparation.

The ortol, being less rapid than metol, can be handled easier.

I can recommend the new preparation warmly.

COLORLESS DEVELOPER.

From *Photo Chronik*.

FOR some purposes it may be of importance to have a developer which will keep absolutely colorless. This is particularly of advantage to chloro bromide of silver plates, which accept color very easily from the developer.

The following formula is therefore recommended :

I.	Hydrochinone	5	grams.
	Metabisulphite of potassium	5	"
	Bromide of potassium	0.3	gram.
	Water	600	cubic centimeters.
II.	Caustic soda	13	grams.
	Water	600	cubic centimeters.

Mix 60 cubic centimeters I with 30 cubic centimeters II. This developer will remain colorless for days.

Translated by
Henry Dietrich.

HOW TO ASCERTAIN THE PROPER SCREEN SEPARATION.

By H. D. Farquhar.

IN making half-tone negatives the proper distance at which the screen plate must be placed from the negative plate, so as to reproduce the exact color, that is, lights and shadows contained in the copy, frequently causes unlimited trouble and annoyance, especially to operators who have had little practice in half-tone negative-making.

Theories have been advanced that hold good in some cases, but cannot be depended upon to cover the general class of work that is daily executed by the photo-engraver. Take, for instance, two photographs, both made from the same negative, one being toned to a sepia tint, the other a warm black. To the general observer each would require the same treatment as to separation of screen plate, etc. Such, however, is not the case, although the high lights and depths of shadow apparently are the same in strength, but the color is different, and that difference in color necessitates a different separation.

To judge the proper screen distance correctly necessitates taking into consideration many conditions ; as, for instance, the size and shape of the diaphragm, the focal distance of the lens, color of copy, the ruling of the screen plate, light, etc. To so judge your separation and get it correct each time is impossible. To obviate this, more accurate means have been devised, which will be explained later.

The general principle or judgment upon which the majority of operatives depend in getting the correct separation may be briefly outlined as follows : First consideration is the ruling of the plate. Coarse screens require greater separation than fine ones. The same may be said when the black lines are finer than the open spaces. As the size of the diaphragm is increased, the nearer the plates must be together. Separation increases as the camera is drawn out, and decreases as it is closed. Lenses of short focus necessitate placing the screen closer. Copy that is light colored requires more separation than dark. The separation also influences the time of exposure. The further apart they are placed, the longer must the exposure be.

If, when making a half-tone negative, the foregoing must be taken into consideration, in order to obtain the best results, considerable thought must be exercised before the screen can be placed at the distance from the negative plate which will produce a negative that will give a duplicate of the copy in contrast and color.

A greater part of this guess work can be done away with by focusing through a ground-glass, as with its use the proper separation is easily determined, as the different shades and tones can be made to show their relative contrast on the ground-glass.

The proper style of ground-glass to use is one three-quarters ground and the remaining quarter left clear. Such a glass is placed in the holder occupying the place intended for the negative plate. A small spring in the top and bottom of each cross-bar will hold the plate in position and prevent its falling out while adjusting the focus. It is advisable not to use too large a glass, say, about 8 x 10 for an 11 x 14 holder. This size will admit of the plate being moved from one side of the holder to the other, thus permitting the greater part of the focus to be covered by the clear glass.

The focusing is done in the same manner as when using the usual ground-glass and frame; that is, the picture is focused sharp on the ground portion of the plate and the camera made fast by use of the focusing screw. The proper screen separation is now determined by using the clear portion of the glass. The holder, of course, must be one of the improved class that admits of separation being made by use of attachments placed on the outer sides of the holder. By the use of this contrivance the separation is increased or decreased by simply turning the indicator, which makes a movement not unlike the focusing movement of the camera.

By the use of a strong focusing lens, adjust the separation so as to make the dots in the high lights lose their square form and submerge into a general rounding off and connection with each other. This part of the operation is carried on by means of the clear portion of the glass.

By making a few negatives and carefully watching results, this system of separating will soon enable the operator to focus and obtain good results, no matter what kind of copy is used, whether flat or colored.

❧

The following is said to be a practical manner of turning blue prints to a rich brown color: A piece of caustic soda about the size of a bean is dissolved in 5 ounces of water and the blue print immersed in it, on which it will take on an orange-yellow color. When the blue has entirely left the print it should be washed thoroughly and immersed in a bath composed of 8 ounces of water, in which has been dissolved a heaping teaspoonful of tannic acid. The prints in this bath will assume a brown color that may be carried to almost any tone, after which they must again be thoroughly washed and allowed to dry.

❧

All copy for February issue must be in our hands not later than January 15th.

FERRISULPHATE AS AN ETCHING MEDIUM FOR METALS.

By Valenta.

If a solution of ferrisulphate in water is brought to act upon certain metals, the corresponding metal sulphate will form alongside of ferrosulphate, and a more or less energetic etching will take place.

By this change, which generally takes place after the equation formula $R + FE_2 (SO_4)_4 = R\,SO_4 + 2\ Fe\,SO_4$, no gas development is caused and no body which is insoluble in water is formed by the copper or zinc plate employed for the production of intaglio plates. This behavior of ferrosulphate solutions caused me to make some experiments about the adaptability of such solutions to application in the autotype process.

That no body forms which is hard to dissolve when etching copper plates with ferrisulphate may be the cause of this etching fluid furnishing such clean and pure etching surfaces.

With ferrichloride, which is generally used for copper etching, this is by no means the case, the cuprochloride (forming after the equation $Fe_2\,Cl_6 + 2\ Cu = Cu_2\,Cl_2 + 2\ Fe\,Cl_2$) being a body that dissolves with difficulty, in consequence of which it precipitates at the etched surface, and can only be removed with a brush.

That the continuous formation of insoluble cuprochloride is detrimental to the uniform action of the etching medium, is clear. If ferrisulphate solutions are not suitable to take the place of the ferrichloride as etching media for copper, this has simply its reason in the circumstance that the ferrisulphate acts extremely slowly, and with very great uniformity.

The experiments have shown that the etching results obtained with ferrisulphate are very handsome, but I have not succeeded yet, by changing the concentration of the solutions within certain limits, in obtaining an essential rapidity of the etching process, and the etching of a copper autotype with a 20 to 30 per cent. ferrisulphate solution required about an hour.

On account of its slow action, it is not directly applicable for practical purposes, but it has a value in connection with the blank etching of copper plates.

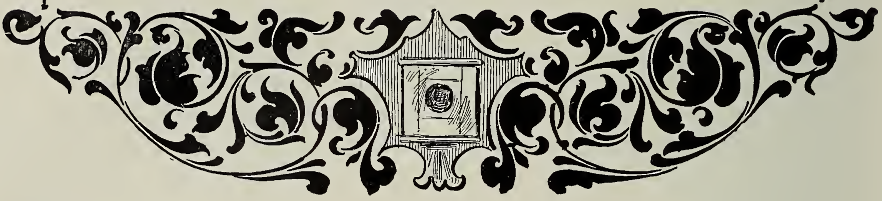
In the enamel process, the burnt-in copper plates are cleaned with a greatly diluted cyanide of potassium solution, to retouch and cover better.

The cyanide is not only a very poisonous substance, but it also attacks the fine points of the enamel picture, if left to act too long. With a solution of ferrisulphate, a pure and clean metal surface is obtained, without fear of the consequences. In its application to zinc, further tests are being made, about which I shall report at a later time.

Translated by

Henry Dietrich.

SOCIETIES



THE first print exhibit of the Glens Falls Camera Club was held during the last week in November, at the Y. M. C. A. Hall, and was very successful, nearly four hundred pictures having been shown. Prizes were awarded in a number of classes, and the occasion was one of great interest and advantage to the Club and its friends.

* * *

THE Camera Club of Erie, Pa., held its annual print exhibit November 24th, the pictures being of a high quality and very artistically arranged in panels and groups on the walls of the exhibition hall. We notice that among the exhibitors Mr. Ottomar Jarecki's name appears as exhibiting a collection of scenes of the old street market, which were of much interest.

* * *

A PHOTOGRAPHIC club has been formed among the leading photographers of Cincinnati, into which nothing in the way of business is to enter, but which is organized purely for social purposes. Club rooms are to be secured, and meetings to be held monthly, the officers for the first year being Mr. R. P. Bellsmith, President; Mr. O. Benjamin, Vice President; Mr. George Smith, Secretary, and Mr. G. H. Barnum, Treasurer.

* * *

THE annual exhibition of the Colorado Camera Club was held on the last week in November, and exceeded in interest and technical qualities any of its predecessors. Awards were made in the usual number of classes.

* * *

THE second annual exhibit of the Camera Club of the Y. M. C. A., of Providence, R. I., was held the first week in December, a large number of photographs having been entered, all of which showed a distinct advance over the work of last year.

* * *

ABOUT four hundred and fifty pictures were entered and tastefully arranged in a recent exhibit of the amateur photographers of Northampton, Mass., held on the 6th of December.

* * *

THE Seventh Annual Exhibition of the Toronto Camera Club opened on the afternoon of December 8th, with thirty exhibitors, and a larger number of pictures than were entered last year, numbering in all three hundred and fifty-four. It is a matter of note that the glossy-surface papers are giving away almost entirely to matt-surface and dull finish in Canada, as well as on this side of the border.

* * *

A REMARKABLY fine exhibition of lantern slides was given on the evening of December 10th by the Orange Camera Club, about one hundred and fifty slides having been shown to a large and interested audience. Several of these slides were of night scenes, which received especial commendation.

A collection of one hundred and fifty slides that formed the slide exhibit of the London, Eng., competition, on a recent occasion, were shown before the Department of Photography of Brooklyn on the evening of December 10th. The slides gave an excellent idea of the work of English amateurs, and the exhibition referred to, will be followed by others during the winter, showing slides of the different European camera clubs.

The Brockton Camera Club celebrated the opening of its new quarters on the evening of December 10th by a house-warming and reception, together with a lantern exhibition and musical programme. The Club is now provided with fine meeting and dark rooms, and we look for good reports from it in the future.

The Fall Print Exhibition of the Park Slope Camera Club, of Brooklyn, was held on the evening of December 10th, at which an excellent showing was made by the members. Applications for new memberships were filed, and a very enjoyable evening spent by the Club.

The Central Camera Club of Brooklyn gave a lantern slide exhibition at the Y. M. C. A. Hall on December 20th, on which occasion about fifty slides of Old Brooklyn were shown, and a lecture delivered by Mr. W. H. Coughlin, of the Club, on Brooklyn during the Colonial and Revolutionary periods. The lecture was both interesting and instructive.

Our Reviewer.
School of Practical Process Engraving

"The International Annual of Anthony's Photographic Bulletin," Vol. X, for 1898, is now published and in circulation among the trade. It is difficult, in the space at our command, to more than touch upon a few of the good things contained. The "Annual" has for its frontispiece a beautiful photograph from Dana's studio, New York and Brooklyn, printed upon Aristo Platino paper in a manner worthy of the highest praise. A very careful selection of subjects was made for this frontispiece, and the finest possible workmanship and care put into its production.

Notable among the full-page illustrations in half-tone are two by F. L. Fieger; a beautiful study of light and shade by Howard Grey Douglass, of Washington; several prize pictures exhibited at the late convention at Celoron; several excellent studies in composition by Mr. V. L. Kupper, and others by well-known professionals and amateurs, whose names alone are a guarantee of their quality.

A very pleasing study in three-color printing, forms the frontispiece to the half-tone portion of the "Annual," all contributing to make what we believe to be the finest illustrated photographic annual extant.

Among the articles which appeal specially to landscape workers might be mentioned "Sentiment in Landscape," by C. H. Cox; "Composition," by L. V. Kupper, either one of which will be found worth the price of the book itself.

"A New Form of Studio," by H.

Hands, of India, illustrated with diagrams and sketches, is full of good suggestions to the portrait photographer; and "Backing Plates," by C. H. Bothamley; "Control," by Martin J. Harding; "Imperfect Fixing of Negatives," by J. H. Harvey; "Improving Poor Negatives," by W. Cooper, are all articles that stand out pre-eminently as of interest and practical value in the darkroom. "Photography in the Open Air," by C. A. Snow; "Photography of Clouds," by Joseph F. Smith, and two articles on retouching, one by Gustine L. Hurd and another by H. M. Beeles, are worthy special attention and worth in themselves the price of the whole volume.

Suggestions for copying pictures in an ordinary room, by R. H. Bow, and an article by E. G. Tabor, on the camera in its use for the Ornithologist, also deserve special mention.

The Process Department contains articles from Dr. Victor Schumann, C. B. Talbot, E. Valenta, P. C. Duchochois, Charles Gravier, Professor Alex. Lainer, W. J. Hickmott, Max Levy, H. D. Farquhar.

These, and many more, with a list of photographic societies in this country and abroad, and a large number of tables and formulas, together with a very explicit article on "Aristo Platino without a Demonstrator," by W. Lansing, go to complete a volume which should be in the hands of every photographic worker, whether amateur or professional.

"The American Annual of Photography and Photographic Times Almanac" for 1898 is before us, and is replete with illustrations and articles of interest and value. Almost every field of photography, pure and applied, seems to have been touched upon, and by men who are thoroughly in the spirit of their work. The illustrations are more profuse than ever, and the book, without question the best of its series.

"Photographic Mosaics" for 1898 comes to us in very neat and well-printed style, containing nearly three hundred pages of reading matter and illustrations, the former of which is, as always, terse and to the point. The list of authors shows the names of many wel-known and practical photographic writers, and this volume stands plainly in advance of any that have preceded it.

"Photograms" of 1897 is to be commended for its excellent illustrations, which strike one at the beginning as being of unusual quality in their selection, although the printing of them might, perhaps, have been improved, if it had been done on this side of the water. It contains over a hundred pages, well arranged and tastefully bound, as were its predecessors. The frontispiece is a very excellent half-tone reproduction from a portrait of Her Majesty, the Queen, which had the honor of receiving the official sanction of Her Majesty for publication during the late Jubilee Celebration.

"The Magic Lantern Journal Almanac and Annual," edited by J. Hay Taylor, contains a half-tone reproduction of the editor's photograph as frontispiece, and something like one hundred pages of matter of interest and value to the lanternist. The usual amount of advertising pages, of which our English cousins are so fond, is strewn throughout the book and marshalled in goodly array in front and back. This latter arrangement we do not object to, but must confess that it is not pleasant to run up against an advertisement in the middle of an article in which one is absorbed.

"Chemistry for Photographers," by Charles F. Townsend, F. C S., F. R. P. S., published by Dawbarn & Ward, Limited, is a first-rate little work, written in a very direct manner on the chemistry of photography. It contains one hundred and sixty pages, and treats of all the chemical agents and actions that will naturally be found by the ordinary photographer in any work he may take up. It is concise, plain and practical.

The Hammer Dry Plate Company have just issued a very neat little pamphlet on negative-making, with formulas, etc., which is full of interesting bits of value in the darkroom and studio. This booklet is mailed free, on application to the Hammer Dry Plate Company.

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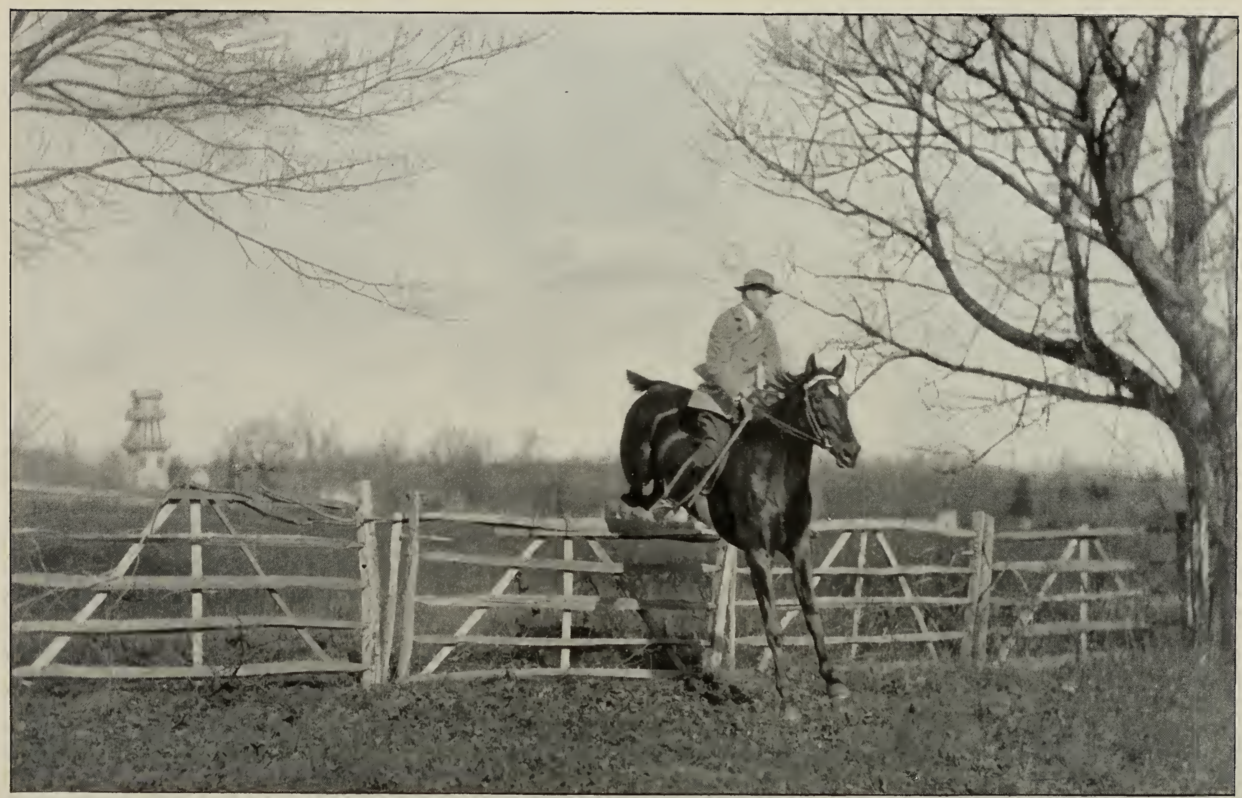

Photographed by JOHN RÖSCH.

First Prize.

A CONVENTION PRIZE PICTURE, 1897.

Class H, Eastern Division.

ANTHONY'S
Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.
W. I. SCANDLIN.

VOL. XXIX. FEBRUARY, 1898. NO. 2.

THE WORK OF THE HOUR.

THE publication in another part of the present number, of the minutes of the Board of Officers of the Photographers' Association of America, will at once suggest to the professional photographer the importance of preparing his work for exhibition at the coming convention at Celoron, July 11th to 16th. Careful attention to the various classes and requirements of work in each will enable the photographer to lay out the lines on which he proposes to compete, and the time now intervening before the Convention is ample to allow of thorough preparation, study and elaboration. It will be noted that all competing work must be made from negatives produced since the last Convention, and this in itself should give added stimulus to the efforts of every earnest worker, with a view to showing the value of last year's convention and the growth of his ideas since its close.

We predict for the coming convention a higher class of exhibits than have ever before been shown, and shall be disappointed if such is not the case, as we believe that never before in the history of photography have its workers been more thoroughly enthused with the artistic spirit, or more earnest in their efforts to bring into their work the principles of true art, than they are to-day.

Let it be remembered that where only one prize is obtained and many entries are made, the losers will have lots of good company, and need, therefore, not be ashamed of having entered. There can be only one best, and only one to receive the prize, and among the unfortunates there must of necessity be a large number who will rank very high in excellence. Thought, study, and experiment along the lines in which one decides to compete are bound to be important factors in the award of prizes.

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WINTER WORK FOR AMATEURS.

THERE, probably, is no season of the year which presents more favorable opportunity to the amateur worker and beginner in photography for branching out into new lines of experimenting, posting himself generally on the methods of work and improving his practical knowledge of the art than the present. Society work should be at its best during the winter season, and, by the way, no amateur will suffer by connecting himself with a good photographic club or society, if such exists in his neighborhood. The constant opportunity offered for interchange of ideas and the emulation likely to be stimulated in work for exhibitions, lantern-slide lectures, etc., cannot be overestimated in value. The long evenings afford opportunity for reading and becoming posted upon the literature of the day, without which progress is almost impossible.

The making of lantern slides, and possibly the coloring of the same, affords another very interesting means of filling otherwise idle hours.

Various new lines of work are possible at this season of the year which are not possible at any other, such, for instance, as the photographing of frost forms upon the window-pane. Very beautiful effects can be obtained in this direction, although, of course, it has the disadvantage that cold weather is of necessity an accompaniment of the possibility. With the camera set squarely to the pane and the light falling in a sidewise direction upon it, excellent results are obtainable, which are very greatly improved, however, by the placing of black velvet or other dark, non-reflecting material a foot or so behind the glass. A slow plate, plenty of time and a small stop, to insure extreme sharpness, are the essentials for success in this work.

Moonlight photography, pure and simple, is also recommended to enthusiasts, who will find the brilliantly lighted evenings immediately preceding and following the full moon in the next two or three months full of opportunity to increase their experience. Well-lighted views should be possible with a fairly large stop and an exposure of from fifteen to thirty minutes. It will be noted, however, that the views obtained with this light, while they will be likely to present full detail in the high lights will also probably have great lack of detail in the shadows, although the general form and broader masses of color will be plainly discernible.

Flashlight photography is another branch of work that can better be experimented with during the present season than at other times, and needs only to be alluded to in this connection.

Another line of work presenting great possibilities, and with them equally great difficulties in manipulation, is that of snow scenery with its brilliant lights and deep shadows, forming, perhaps, the hardest possible kind of subject, but one which, properly handled in all its details, is very difficult to surpass in beauty.

An article in this number of the BULLETIN gives valuable suggestions for this work.

Items of Interest

IT is a very encouraging sign of the times when a noted foreign diplomat like Mr. Curzon, British Under Secretary of Foreign Affairs, says in his suggestions on practical education: "An excellent thing it would be if most young men and young women were taught photography, for there is no pursuit which, with less trouble, more develops the power of observation."

Professor J. H. Rees, of Columbia University, recently said that there are now eighteen observatories throughout the world making photographs of the heavens, with the purpose of finally covering the whole area. Twenty-two thousand plates will be required for this work, from which a catalogue of the stars and a chart of the heavens, showing the exact position of each star, will be made. Professor Rees deplored the fact that so many of the munificent donations of wealthy people to the service of the cause were devoted entirely to the purchase of instruments and buildings, the donors seeming to forget that astronomers cannot live on nothing. This would seem to be a very timely hint for some of our intending donors to contribute to the maintenance and encouragement of research and investigation as a new departure in the field.

A great deal of space has lately been taken up in the foreign journals with discussions as to the relative values of sharp and fuzzy pictures, and a good deal of heat has been generated in the fraternity by the discussion. Meantime, we as a rule, on this side of the water, only see value in the latter when it is unavoidable.

Mr. Andrew J. Rösch has, we understand, withdrawn from the firm of Rösch Brothers, so long identified with St. Louis, Mo., and purposes to retire to his old home in Poughkeepsie, N. Y. On the evening of December 29th, a farewell banquet was tendered him in St. Louis, on which occasion he was presented with a gold locket set with a cluster of diamonds. Those present at the dinner were Messrs. J. C. Strauss, F. W. Guerin, Arthur Curtis, Attorney Zimmer, Billy Rundle, F. R. Parsons, H. Holborn, Messrs. G. and E. Cramer, Robert Benecke, Henry Armbruster and Sam Borski.

The recent advances made in vacuum tube lighting by Nikola Tesla seem to indicate that great things may be looked for in the near future by the application to photography of his new method of producing electric light in a vacuum tube. We await the results of its enlarged application with much interest.

Referring to the article which appeared in the Bulletin of last November on "Storage Light," one of our readers takes exception to the theory therein advanced, and proceeds to say: "It is a well-known fact that no plate-holder is absolutely light-proof, and that some light will always enter the holder at the opening where the slide is inserted, but this light, instead of directly affecting the plate, passes along the interior of the slide, doing damage only if reflected, as in the case above mentioned." We shall be glad to know if any further light may be reflected from the researches of our readers in this matter, as it seems to be open to discussion, and if the storage theory is a pertinent one, it would seem to be worth investigating.

◆

Referring to the prize competition offered under the auspices of the Boston Camera Club for instantaneous photographs of large soaring birds, to which previous mention has been made in the columns of the Bulletin, we would say that as one hundred different photographs have not yet been entered, the time for closing this competition has again been extended to October 1, 1898. This competition opens a field of work which is very interesting, but very little explored, and one which should appeal strongly to the more advanced workers, as the results obtained from it will, doubtless, go to make up a very important addition to the history and theory of aerial navigation.

◆

Mr. F. M. Somers, who for a number of years past has been a prominent photographer of Memphis, Tenn., has severed his connection with that city and goes to other fields. Messrs. McCrary & Branson, of Knoxville, Tenn., have taken up the business lately carried on by him.

◆

It is said that a flat negative lacking in contrast may be made to yield a better print than would otherwise be possible if the printing is done through a sheet of "cathedral green" glass. This simple treatment will materially improve the strength and contrast in the resulting picture.

◆

The co-operation of amateur photographers and others is asked for the coming exhibition of the New England Sportsmen's Association, to be held in Boston, March 14th to 26th, on which occasion a gallery for the display of a loan exhibition of photographic art has been arranged, which it is intended to make one of the most interesting features of the exhibition. All communications should be addressed to Mr. J. P. Loud, 85 Water street, Boston, Mass.

◆

Mr. William A. Eddy obtained several very interesting and unusually successful results from his experiments in photographing the recent celebration of the birth of Greater New York by search light. Many of the prints show a range of detail hardly to have been expected under the adverse conditions under which they were made.

In a recent interview with *Leslie's Weekly*, Mr. Geo. G. Rockwood, of New York, in speaking of the different characteristics to be seen in the right and left profile of the same face, is quoted as saying: "The right side shows what I may call an 'empty face.' The left is the characteristic side; in it especially, we see whatever of geniality, of 'sweetness and light,' there may be in the disposition. The right, while it may sometimes happen to show more strength, is, as a rule, mask-like and immobile, and it fails as an index to character. Although this applies to the entire *ensemble* of the right side of the face, it is particularly true as regards the expression of the eye. I have often thought it strange that even the most famous modern portrait painters, despite their necessarily close and discriminating study of the human countenance, should have failed to discover this essential difference. Perhaps the reason is that the artist seeks the comely side first of all."

◆

As "in the making of many books there is no end," so in the field of lantern-slide lectures there is no dearth, but in both there is a wide difference as to the quality to be found. We lately had the pleasure of listening to Mr. D. L. Elmendorf's lecture on Yellowstone Park, accompanied by his magnificent colored slides on that subject, and cannot but testify to the enjoyment experienced during the hour we were under his instruction. Mr. Elmendorf is to be congratulated upon the nicety to which he has reduced, not only the manipulation ot the light and the perfect working of all accessories, but also upon his delightfully easy manner and his pleasing and instructive way of putting things.

◆

In connection with the proposed memorial to Fox Talbot, which is now being stirred up in the European journals, it is suggested by one of them that the fund amounting to in the neighborhood of £240, which has been collected for the purpose of founding a memorial to the late Mr. J. Traill Taylor, and for which no definite disposition has been made, be turned over to the Fox Talbot memorial, thus "helping to perpetuate one of the greatest names in photography." It seems to us that such a misapplication of funds as this would be a very questionable policy, if not something worse and if we were contributors to the fund should see to it that a very earnest protest was entered against any such use of the money.

◆

Mr. J. A. Hoerter has connected himself with the firm of Walter N. Escott, of Louisville, Ky.

All copy for March issue must be in our hands not later than February 15th.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

Jamestown, N. Y., January 10, 1898.

Minutes of Meeting.

MEETING called to order at 7.30 P. M., with President Kellmer in the chair; members of the Executive Board all present. Secretary and Treasurer's Report for 1897 was read. Mr. Guerin and Mr. Van Norman appointed Auditing Committee to audit Secretary and Treasurer's accounts. The following telegram from Mr. Hayes was read.

"Officers Photographers' Association of America. I make a motion, seconded by the entire membership of the Association, that the Board have a successful meeting and a royal time in Jamestown.

"(Signed) Ex-President Hayes."

The Auditing Committee reported Secretary and Treasurer's accounts correct, and report a balance of $1,910.40 in the Treasury. Moved and seconded that the Auditing Committee's Report be accepted and Committee discharged. Adopted.

Moved and seconded that the meeting adjourn until 9.30 Tuesday morning. Adjournment.

Tuesday 10 A. M.

Treasurer's Bond was presented and formally accepted. It was moved and seconded that Missouri be transferred from Western Division to Middle Division. Adopted.

Moved and seconded that Texas be transferred from Western Division to Southern Division. Adopted.

Moved and seconded that a fifth division be added, which shall be called the Northern Division, and which shall consist of the Dominion of Canada and of Newfoundland.

Moved and seconded that the Secretary be instructed to write the Secretary of the Treasury of the United States, to make such arrangement, if possible, as will enable Canadian exhibits to be entered free of duty. Adopted.

Moved and seconded that the Eighteenth Annual Convention of the Photographers' Association of America be held at Celoron from the 11th to the 16th day of July, inclusive, 1898. Adopted.

Moved and seconded that the Auditorium at Celoron, with the additional privileges heretofore enjoyed, be rented from the Celoron Amusement Company at the same rate as charged for Convention of 1897. Adopted.

Moved and seconded that three Judges be appointed to judge all exhibits, and to receive remuneration for their work. Adopted.

Moved and seconded that no one shall be allowed to photograph any exhibit, while the same is in charge of the Association, without a permit from the owner, countersigned by the First Vice-President. Adopted

Moved and seconded that one hour each day be devoted to answering questions from the question box. Adopted.

The following communication from The American Aristotype Company was read :

" President Kellmer and Gentlemen of the Executive Committee of the Photographers' Association of America.

" Referring to the discussion at the last meeting of the Association at Celoron as to the advisability of such Association conducting a School of Photography, we beg to say that if after the proper consideration of this matter by your Committee, you deem it wise and to be to the best interests of the Association to conduct such a school at their own expense, we will most cheerfully withdraw our school from this year's programme and extend every facility and aid within our power to the success of such an enterprise. Kindly advise us at your earliest convenience as to your conclusion in this matter, so that we may make the necessary preparation in the event of continuing our school.

" (Signed) AMERICAN ARISTOTYPE COMPANY."

Moved and seconded that the Secretary be instructed to answer the communication from The American Aristotype Company, as follows :

" Inasmuch as we do not deem it advisable, owing to the expense, to conduct a School of Photography, and recognizing the great good your school has accomplished, we, the Executive Committee trust you will continue the same." Adopted.

The President appointed the following Committees :

ON ENTERTAINMENT—F. W. Guerin, *Chairman.*
ON MEDALS AND BUTTONS—George H. Van Norman, *Chairman.*
ON TRANSPORTATION—George B. Sperry, *Chairman.*

There being no further business, meeting was adjourned, subject to the call of the President.

GEORGE B. SPERRY, *Secretary.*

LIST OF PRIZES

offered by the Photographers' Association of America, at their Eighteenth Annual Convention, to be held at Celoron, Chautauqua Lake, July 11 to 16, 1898 :

GRAND PORTRAIT CLASS.

Three pictures, 13 inches or larger : First award, diamond badge ; second award, gold medal. Prizes in this class are to be competed for direct, and are not awarded through Class A of the different divisions. Competitors cannot enter any other classes, except Grand Genre and Class B (Group Class).

GRAND GENRE CLASS.

One picture. No restrictions as to size. Subject to be chosen by the photographer. The title to be appropriately inscribed on the picture. A liberal amount has been set aside for the purpose of a suitable prize for first award; second award, gold medal. Prizes in this class are to be competed for direct, and are not awarded through the Genre Class of the different divisions. Competitors cannot enter any other classes, except Grand Portrait Class and Class B (Group Class).

Division Classes.

Genre Class.—One picture. No restrictions as to size. Subject to be chosen by the photographer. The title to be appropriately inscribed on the picture. First award, gold medal; second award, silver medal; third award, bronze medal.

Division Prizes.

Class A.—Six pictures. Three or more to be 13 inches or larger. First award, gold medal; second award, silver medal; third award, bronze medal; fourth award, diploma.

Class B.—Three group pictures, 9 inches or larger: First award, gold medal; second award, silver medal; third award, bronze medal; fourth award, diploma. Groups must not be combined from separate negatives. This class open to all.

Class C.—Four pictures, 9 inches or larger: First award, silver medal; second award, bronze medal; third award, diploma.

Class D.—A rating competition. Twelve cabinets only. These must be framed in one frame. First award, silver medal; and to all receiving a standard equal to twenty-one points or over out of a possible thirty, one bronze medal.

Class E.—Landscapes, with or without figures. Three pictures, 9 inches or larger: First award, silver medal; second award, bronze medal; third award, diploma.

Class F.—Interiors. Three pictures, 9 inches or larger: First award, silver medal; second award, bronze medal.

Class G.—Commercial photography. Six pictures. Size to be left to the discretion of the photographer. First award, silver medal; second award, bronze medal; third award, diploma.

Class H.—Best instantaneous pictures. Three pictures, 6 inches or larger of animals or objects in motion. First award, silver medal; second award, bronze medal.

Class I.—Foreign exhibit. Best collection of photographs, any size, framed or unframed, to be delivered to the Association free of charge. First award, silver medal; second award, bronze medal; third award, diploma.

Rules and Regulations.

1. All competitors must be members of the Association, except in Class "I."

2. Exhibitors cannot compete in more than one of the following classes: A, C or D.

3. When one dimension of picture is given, it applies to the entire length or breadth of picture in all classes. This rule applies to size of print, and not to mount.

4. All exhibits must be framed without glass. In framing exhibits for Class "D," put twelve pictures in one frame. Any exhibit not framed will not be hung.

5. All exhibits must be delivered in Jamestown, N. Y., care of the Photographers' Association of America, by July 1st, and all charges prepaid.

6. Applications for space for exhibits in the Art Department to close positively Monday, June 27th. No space will be allotted after that date. Applications for space in this department must be made to F. W. Guerin, No. 506 Olive street, St. Louis, Mo.

7. All exhibits of pictures must be addressed to F. W. Guerin, First Vice-President Photographers' Association of America, Jamestown, N. Y., and all charges prepaid. In case charges are not prepaid, the Association will not accept same from express company.

8. Exhibits for Dealers' and Manufacturers' Department to be shipped to George B. Sperry, Secretary Photographers' Association of America, Jamestown, N. Y., charges prepaid, and must be placed in position by July 9th.

9. Have your box covers screwed instead of nailed. Your home address must be marked on under side of cover for return of pictures. Association will not be responsible for packages that are not so marked Put screw eyes and picture wire for hanging, in box.

10. All boxes and packages will be accepted at any time previous to July 1st, so that photographers need not feel any uncertainty about the safety of their goods. No exhibits will be allowed to be removed from the hall until the close of the Convention.

11. No manufacturer, dealer or their representative shall do business on the Convention floor, unless he or they rent floor space or desk room.

12. All exhibits must have cards bearing name of exhibitor, city, or town and State. Each separate frame should have name of exhibitor on back. The object of this rule is to facilitate the work of Judges and Executive Board.

13. All entries for competition must be made from negatives made since the last Convention.

MEMBERSHIP.

SEC. 5. Any person who is eligible may become a member of this Association by making application to the Treasurer, and paying an initiation fee of $3 and annual dues of $2, in advance.

SEC. 6. Employes will pay into the Treasury their annual dues, the sum of $2. No initiation fee will be required. Application for membership should be made to George W. Varney, 3937 Drexel Boulevard, Chicago.

(Signed) J. WILL KELLMER,
F. W. GUERIN,
GEORGE H. VAN NORMAN,
GEORGE W. VARNEY,
GEORGE B. SPERRY,
Executive Committee.

ATMOSPHERIC DUST AND ITS RELATION TO ACTINISM.*

"IT is reasonable to believe that the rays of light emitted by the sun vary but little from time to time. When we consider, therefore, the varied character of the light which reaches us, we must look chiefly at the intervening media through which the light passes for the reason of its fluctuation.

"If it were merely a case of the sun's angle of incidence which had to be considered, it would be a comparatively easy matter to calculate approximately the exact actinic value of the light which would reach us at any hour of the day when the latitude and altitude were known; and then exposure would be simply a 'rule of thumb,' instead of being, as it is at present, the photographer's *bête noir*.

"The millions of miles of imponderable ether which exist between the sun itself and our earth's comparatively thin envelope of atmosphere must change but little. The number of meteors and the quantity of meteoric dust may vary, but this variation is inconsiderable compared with the variability of the atmosphere of the earth. It is, therefore, in the earth's atmosphere that we have to look for the cause of the considerable variation of actinism.

"Experiment proves that pure air—air quite free from dust particles or aqueous vapor—permits the actinic rays of the sun to pass through it with but very little diminution; but there is no such thing in Nature as pure air. Air contains millions of small particles, which generally go by the name of dust, and the number of these will doubtless surprise some readers. Comparatively pure air, taken from the summit of Ben Nevis, and analyzed by Professor Aitkin, was found to contain 2,100 dust particles to the cubic inch; and air from a room in which a meeting had been held contained as many as 57,400,000 solid particles to the cubic inch. To say of what these particles are composed would require many pages, for they consist of almost everything. Speaking of them but very briefly, there are the spores of mildews and moulds, which we all know are so ready to germinate when they find a suitable resting place on a moist substance. Microbes generally, perhaps, ought to have been mentioned first, on account of their importance. Dead organic matter forms a very considerable percentage of common dust. Then there is the meteoric dust in our atmosphere, which some years ago considerably puzzled the scientists when small particles of iron were found in the snow of the Himalaya Mountains over 13,000 feet above sea level, and 14 miles from the nearest habitation; and small particles of pumice stone emitted from our volcanoes, which has been found in such a finely divided state that some pieces were only $\frac{1}{15000}$ part of an inch in thickness. I have said enough to show that, though these particles are, individually, infinitely small, still, in the aggregate, they are sufficient to make the difference between good light and bad. It is to a great extent to these dust particles that we owe the variation of the conditions of our atmosphere, from a photographic point of view. It is generally stated that without dust it would be impossible for us to have fogs, and what is said of fogs is, generally speaking, true of clouds. This statement is not exactly true, for, though it generally forms the nucleus of condensation of the watery vapor in the atmosphere, nevertheless it is found from recent experiment that condensation, and consequently fog, will take place in optically pure air, in which there are some other gases in suspension.

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* Mr. W. A. Ingram in *Photography*.

"It is highly probable that dust in the camera itself may be the cause of what some of us have thought to be a decrease of the actinic power of the sun. The interior of the camera must necessarily contain much dust, and carrying it about would keep this dust continually in a state of agitation; and the longer the camera is used, unless means are taken to remove it effectually, the larger the quantity collected in it is likely to be.

"Most photographers have noticed the increase of actinism after a shower of rain. This is owing to the fact that the rain washes down to the ground much of the suspended matter, and so enables the sun's rays to pass more freely through the atmosphere. It has been, perhaps, less generally noticed that, other things being equal, light is much stronger in actinism after a fog. This is because much of the solid matter has been used up as nuclei of condensation; and if a wind comes, the fog and everything in suspension in it are quickly dispersed, and then, as after a shower, light is good."

VIEW FROM TWENTY-THIRD STORY OF THE ST. PAUL BUILDING, CORNER ANN STREET AND BROADWAY, NEW YORK CITY, LOOKING NORTH.

Photograph by F. J. Griffith.

TOUCHING RETOUCHING.*

By Alfred Harriellor.

THERE is just now arising in certain quarters an outcry against truthfulness in art, which is being taken up and imitated in the pages of sundry periodicals. Now, I am old enough to remember when photography had its earliest professional representatives in London ; when the old miniature painters—whose showcases were then to be seen in all the leading thoroughfares—prophesied against it, believing most firmly that it would never please the public. These photographic portraits, said they, will not be popular—they are too truthful. But they were false prophets all, for within a few years the show-cases of the poor, poverty-stricken miniature painters had all disappeared, and in their places were those of the flourishing photographers.

Nor had cost much to do with the change, for in those days half a guinea was the common price for even the smallest daguerreotypes, and there were plenty of miniatures—of a kind—painted for that sum. The competition was fairly and truly one between truth and untruth, between the "flattered" portraits and more "truthful" portraits. The cheap ivory miniature painters, who painted portraits for a half-guinea or a guinea each, had ideas of flattering their sitters which were both foolish and false. They increased the size of the pupils of their sitter's eyes until they looked like cat's eyes. If the iris softened into the cornea in Nature, they put a hard dark line round it ; all the ladies' mouths were diminished until they looked like, and were as expressionless as, so many pursed-up button-holes ; and the expressive muscles at the corners of the lips, on which so much of the life-like effect and character depends, were always ruthlessly destroyed. Wrinkles were of course, omitted, and all strongly marked muscular characteristics were diligently smoothed down, or altogether overlooked. Then it was also the common custom to substitute for the figure of the sitter that of a more proportionate and graceful model, and paint in the hands in like way from another model whose hands figured in portrait after portrait by the score as those of the persons represented. And all this was done in the belief that portraits were thereby made more pleasing to their owners and their friends. Yet after the introduction of photography, miniature painting became an almost extinct art, and now it is again reviving only because it is more like photographing ; it emulates the truthfulness of Nature, being largely assisted by the camera, whereas photographic portraits are more and more commonly displaying all those qualities that once disfigured the old miniatures—the cat-like eyes, the button-hole mouths, the smooth, hard, unwrinkled, unmuscular, porcelain surfaces, all these things arising from the abuse of "retouching," and the revival of a belief in the attractiveness of "flattering" pictures. It was and is just the same with the drama. It was the actors who did not believe in good plays, of an intellectual and poetic character, who lowered its dignity and importance. They always shielded themselves behind the playgoers, saying the public will not patronize the legitimate drama, and we who live to please must please to live. Yet the public do patronize good plays when they can get them, and people who pay for portraits do prefer those that are natural and truthful to those that are fanciful and unnatural—in other words, inartistically retouched.

Retouching is, however, when legitimately practiced, both desirable and useful. Where the contrasting light and shade is wanting in proportionate qualities, where over-exposure or under-exposure misrepresent the forms, where the wrinkles are exaggerated in depth, and the bones of the cheek are made more prominent than they are in Nature by burnt-out high lights for want of natural intermediate tones between the lighted passages and shade. Here the aid of the retoucher, in conjunction with that of the printer, is most useful. Or when those deep cast shadows which give the features their due amount of relief, and bring out the genuine effects realistically, are not sufficiently marked, the retoucher, if he or she has artistic taste, and perceptive power, with the requisite delicacy of manipulation, may be

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*From *The Photographic News*, December 24, 1897.

legitimately employed. But, as a rule, the person who retouches has had no art training, possesses no real taste, but only has the power of softening down any and everything by a grain or stipple, applied mechanically all over the face. Such a retoucher, however, does least harm when he does least work. After he has done his little bit of artificial blending and softening, the less the better, he should put aside his tools, content with having done as much good and as little harm as possible.

There is quite as much to be done by the retoucher in aid of the general pictorial effect of a portrait by working upon the background and drapery as upon the face. When accessories assume a degree of importance out of keeping with their due importance, tone them down. When it is too uniformly flat and dark, let a little soft twilight into it, whereby the effect of space behind the head and the relief of the head will both be served. When the decorative details of some over-elaborated background insist upon staring out in vulgar rivalry with the sitter's face and figure, the usual treatment of the negative for suppressing excessive contrast comes in with excellent effect, unless the simpler method of masking can do the required work. Printing through tracing paper will sometimes suffice, and, if required, this paper may be worked upon with chalk or pencil very advantageously. The paper must, of course, be in perfect contact with the flat surface of the glass. In this case, the face or faces, and figure or figures, should be so taken that the softening to blending effect does not beget that kind of obscuring, blurring, and wooliness, which I regret to find so many photographers admire. To make a photograph unlike a photograph is no more artistic than it is to make a painting unlike Nature. As to calling these flattened-out, murky representations " interpretations " as distinct from " imitations of Nature " (I quote from a contemporary), I cannot conceive what real advantages can be rightfully claimed for that process.

Let us use words as meanings, not sounds only. To interpret (see your dictionary) is to translate, and the value of a translation is undeniably its fidelity to the original—in other words the closeness of its imitation. Everything that is done to improve a negative should be done, not so much to decrease as to increase its truthfulness ; to do for the photograph what the photograph fails to do for itself. That is the kind of interpretation we want to see on the walls of our exhibitions—not the unreal and untrue. A morbid craving for something new—something, exciting, sensational, and extravagant—has always been mischievous in both art and in literature, and it will not be less so if encouraged in photography. There is nothing in fog and flatness that " elevates " the art as the impressionists assert there is ; nothing to raise the standard of artistic operating. The various means which are sneered at as " faking " and denounced as trickery are legitimate enough when used with a legitimate end in view, otherwise all such doings are mere trickery and fanciful nonsense—dodging, not facing, genuine difficulties.

The end, not the means, should govern the judgment of our photographic art critics. Good taste, and not a morbid craving for novelty, should dictate to the photographer the extent, nature, and genuine purpose of retouching.

Artists have of late been themselves offenders in this craze for " impressions " instead of " representation "—vague, mystical, and more or less meaningless productions instead of natural exactness. Everything that blends art with Nature, that teaches as Nature herself teaches, awakening the same sympathies, touching hearts with the same sympathetic feelings, and inspiring every mind with the same thoughts, is surely better than works which separate themselves from Nature, and consequently from Nature's teachings, and have all their value in their novelty, and what they will sell for at the exhibitions.

Mr. William Strang, an artist, in the pages of a weekly contemporary, says those who object to working upon and otherwise assisting the negatives to increase their pictorial value, are opposed to those who " are really widening the scope of photography, and giving room for individuality in treatment, which, in turn, will give a greater range in choice of subject, and in helping many things which go to the making of an interesting piece of work." This is quite true, but in the continuation of this writer's paper he claims for it that facts are all the better when " fanciful" and "doctored." In other words, that by ceasing to be facts they become more attractive. Well, that may be so, but it is not necessarily so nor desirably so. The variety to be found in facts is larger than the variety which falsehoods command; the resources of Nature exceed all the resources of the imagination. Mr. Strang confesses himself a doubter of our art's artistic power, and says: "There is credit, then, to those who attempt to make a scientific process so flexible that, if not art, it is still sufficiently removed from the ordinary examples of the shops as to be well worth the study of those to whom cabinets at so much a dozen are of no interest."

This is but cold comfort—damping discouragement for photographers with fervid artistic aspirations. But this scorn for things that are not costly in all its many phases is very snobbish and vulgar. What has the price of a work of art to do with its merit? What the better is it for being dear, what the worse is it for being cheap, providing the one is as meritorious as the other? One man is as good as another if both are as deserving of our esteem, although one may be "made of money" and the other very poor. So in a work of art, its price has nothing to do with its merit. If photography is merely a flexible scientific process and "not art," let it be purely photographical. When retouching and faking embrace no higher aim than an attempt to raise the prices of photographs by substituting the fanciful and artificial for the genuine and truthful, then such processes will soon become both cheap and common, and photography itself will be depreciated and made lastingly uninteresting. Cheapness combined with superior value has raised the prices of many commodities in the trading and commercial world. To fake is not necessarily to improve, and if we cannot make our photographs more picturesque and truthful by retouching, let us go back to the days of mechanical operating and be content with the overcrowded, unambitious productions of "cabinets at so much a dozen" in all their primitive simplicity and much-contemned cheapness. As to works which are neither artistic nor photographic, but the bastards of a "flexible scientific process," "extraordinary" by virtue of the prices they fetch and their fancifulness and want of truth, be sure they will not either elevate our art in the domain of good taste nor increase its commercial value.

Mr. Strang, who is careful to inform us he is not a photographer, but an artist, says: "A good artist can make a fine picture from a poor model, but a camera cannot." So far is this from being true that there are within my knowledge scores of photographs which are fine pictures, although the originals they were taken from were "poor models." On the other hand, we all know that a paint brush and a chisel have sometimes produced poor works from the best of good models. Of late years, and this year (in our London exhibitions), we have seen exhibited photographs which are as truly pictures as they could have been if they had been produced by a brush, because the photographer's artistical, intellectual and technical accomplishments had as much to do with their producing as his camera had, and because, moreover, retouching and other expedients were judiciously made use of and not abused.

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Since the little item in Editorial Notes regarding Mr. F. M. Somers, of Memphis, Tenn., went into type, we have learned that Mr. Somers has bought the Landy Studio in Cincinnati, which he proposes to open as soon as possession can be obtained, and to cater to thoroughly high-class work at high prices, which Mr. Somers believes in keeping hand and glove together.

The BULLETIN wishes Mr. Somers all success.

THE "International Annual" has scored a great success in its tenth volume, as may be seen by the various comments made by its readers since publication. The edition is rapidly becoming exhausted, and at the present rate it will not be long before they are all gone.

UNCLE SAM'S TWO OBSERVATORIES—PHOTOGRAPHING MAGNETISM.

By J. E. P.

SITUATED on Georgetown Heights, overlooking the City of Washington and the Potomac River, the United States Naval Observatory is admirably located for its work; and from a point of picturesque beauty, with a splendidly diversified landscape stretching away to the view, it would be difficult to find a more charming spot in which to draw near the heavens in contemplation of the mysterious worlds above.

The Observatory grounds are reached—after leaving the suburban electric car—by a winding walk leading up through a fine grove of trees to the plateau, where are the long white marble main building and smaller instrument-houses. In the larger structure are located the offices of the place, where, besides the routine work, as in the other government departments, the knowledge revealed by telegraphic research is recorded, computations made of star and planet distances, light messages sent from the planets down through the spectroscope's detecting prisms interpreted, and maps and photographs made of the blue, twinkling dome above. In this building is located the 12-inch equatorial telescope, used in general skywork and for the inquisitive public star-gazers, who come once a week in large crowds to get, by sight, as near heaven as possible.

Photographed by Chas. T. Fellows, Observatory Photographer.
MAIN BUILDING, U. S. NAVAL OBSERVATORY.

The work of the Naval Observatory is of a general astronomical nature, besides looking after instruments of navigation for Uncle Sam's ships. When a United States vessel goes to sea, she is something of a floating observatory, equipped with a navigating outfit of the finest kind. Each ship has four chronometers, which before being used are tested at the Observatory, as is the remainder of the scientific equipment, where they are subjected to extreme degrees of heat and cold, so that they will not be affected by any climate.

With the aid of star and planet, the Observatory "keeps tab" on time, and by a wire connected with the Western Union telegraph line at Washington, sends the time message exactly at 12 o'clock each day to clocks in various parts of the country. The Government gets nothing for this valuable service, but the telegraph company reaps a golden harvest from it. The astronomers of Georgetown Heights seem to deal largely in time, for there are clocks in many parts of the buildings, ticking away as if the stellar system swung round to the sound of a timepiece, and would stand still if the clocks stopped.

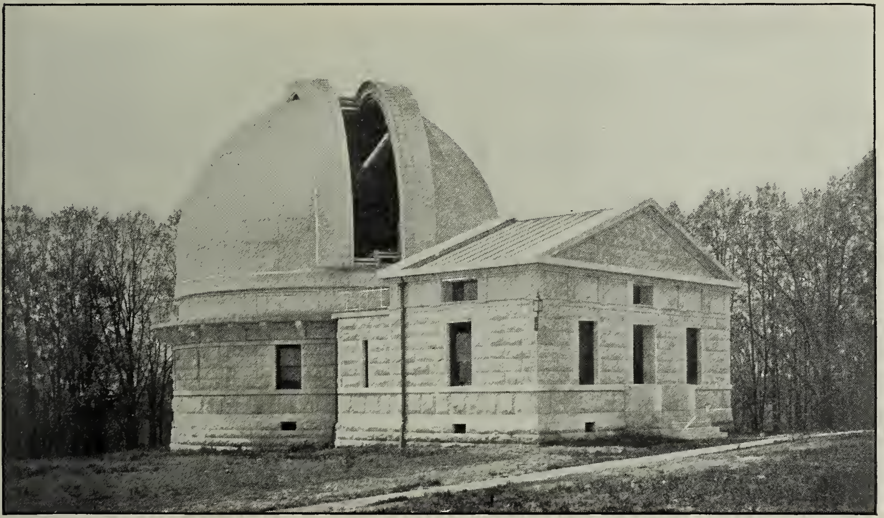
The things which have the most attraction for visitors at the Observatory are the telescopes. There are four of these—not including the little comet-seeker—the largest, of course, being the 26-inch equatorial instrument. This great brass tube occupying an iron roofed building all to itself, is 32 feet long, and is mounted so high that, when in a horizontal position, its eyepiece is about 12 feet from the floor when the ladder is resting on its foundation. This floor is movable, operated by hydraulic machinery, and takes the observer up to the telescope, instead of compelling him to climb a ladder, as is the case with the 12-inch equatorial.

Photographed by Chas. T. Fellows of the Naval Observatory.
CLOCK AND TRANSIT INSTRUMENT HOUSES.

The two smaller telescopes—prime vertical and 9-inch transit instruments—have for their work a more limited field than that which engages the others. The prime vertical is only 84 inches long, has a 5-inch glass, and is mounted between granite pillars, upon which it swings. Its range is east and west in the vertical circle. The 9-inch instrument has a focal length of 12 feet, and ranges north and south. These telescopes are used for the accuracy with which they measure star positions rather than for magnifying.

There is one branch of the Naval Observatory of which the public knows but little. This is the department devoted to terrestrial magnetism. That the earth possesses a vast amount of magnetism is well known, and it is said that electric energy from the sun is being continually received and given off by our planet; but concerning magnetic waves and currents which flow from the earth, and the sun spots so often coincident with great magnetic disturbance, not a great deal has yet been made clear.

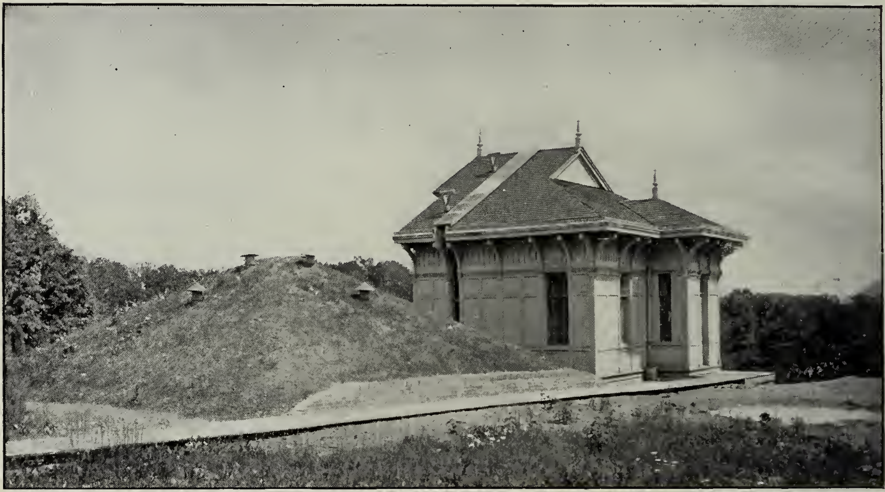
The main business of this peculiar magnetic branch of the Observatory is the study of atmospheric electricity and earth currents, and their direction and force, forming thereby a basis of scientific data, which can be applied in a number of ways. Perhaps the most valuable application of the idea is its use in connection with the mariners' compass, by which undue shifting of the latter is guaranteed against. By getting the direction and force of the magnetic current, the true direction of the compass needle can be determined, and this can be done, not only for present time, but, by referring to a magnetic record of several years past, a forecast of how the needle will point several years to come can be made. Magnetic correction of the compass is also employed to great advantage in European mining operations, where, on account of the ore, there is much deflection of the needle.



Photographed by Chas. T. Fellows of the Naval Observatory.
THE GREAT EQUATORIAL INSTRUMENT HOUSE.

The manner of carrying on the magnetic work is by magnetograph photography. The building used for the purpose is called the magnetic observatory. This consists of an above-ground wooden structure, in which are various instruments, including a compass-testing stand, a declinometer and a theodolite, and a separate underground chamber covered by a high mound of earth, through which extend a number of ventilating pipes. This room has double walls, with intervening air spaces, and is kept at a constant temperature by means of small brass gas stoves.

The apparatus contained here, consists principally of three magnetic needles, and a recording mechanism run by clockwork, each mounted upon stone supports arranged in triangular shape, with the photographing recorder at the middle of the base line. Extending north, west and east from the recording chamber (which is a shallow octagonal wooden box), and opening into it, are three narrow wooden boxed channels, about 6 feet long, having at their outer ends glass-covered cylinders, in which are the magnetic needles, nicely balanced. When there is magnetic disturbance, these little metal pointers, recording, respectively, horizontal force, vertical force and declination, begin to move. At this point a small mirror (one being attached behind each needle), with the aid of a spot of light centered by a lamp, reflects the changing positions of the metal point through the boxed channels and upon sensitized photographic paper, which is moved continuously by the clockwork. Upon removing the paper (which is done once in two days), after there has been magnetic disturbance, the sheet will show parallel lines representing in zigzag shapes the movements of the three needle points. If the needle has not moved, straight lines will be revealed, showing the absence of current; the irregular lines show direction, force, etc. After the sensitized paper has been removed from the recording chamber, blue prints are made from the copy and sent to various observatories.



Photographed by Chas. T. Fellows, Observatory Photographer.

MAGNETIC OBSERVATORY.

At any time when the observer desires to mark the progress of the magnetic instruments, he looks at them through little telescopes. There is one of these for each magnet, also a reading scale, so that the latter can be examined without being disturbed.

Is there a place where one can get nearer the "secret springs of Nature" than at the Naval Observatory? And is there anything connected with it more wonderful than that chemical analyzer of the heavenly bodies, the spectroscope. With this attached to a powerful telescope, the planets must give up the secrets of their material construction, and with the photographic apparatus attached, their markings tell further the stories of the orbs.

EARTHQUAKES PHOTOGRAPHICALLY RECORDED.

AT a recent meeting of the London Camera Club, Professor Milne, F. R. S., gave a most interesting and instructive talk on the subject of earthquakes, and the methods used in recording them, which has been described in the *Amateur Photographer* of November 26th, from which we quote as follows :

" Professor Milne, F. R. S., gave a most interesting and at the same time highly amusing discourse on earthquakes. His name is now so intimately connected with the subject and the beautiful instruments by which he measures and records these earth waves, that a brief description cannot fail to interest. He has adopted the idea of a ship rolling from side to side with a swaying mast and swinging boom. Essentially the instrument consists of a short mast, some 2 or 3 feet high. Towards the lower portion projects a boom of about the same length. This is held up by a tie-cord and accurately poised, the bearings being a steel point in an agate cup. Thus, as the earth swings to and fro, the boom oscillates from side to side. By raising or lowering its " ties," *i. e.*, adjusting its angle with the mast, its period can be regulated with great accuracy. And this is of importance, for if it were not synchronous with the earth wave it would not accurately record such disturbance. The next thing is to record the swinging to and fro ; this again is most simple. At the distal end of the boom are fixed two small horizontal plates of thin metal separated a small space from each other. In each is cut a narrow slit, but the two slits are at right angles to each other. By means of a small lamp and suitably placed mirrow a beam of light is made to fall on the top plate. The slit in this would permit a line of light to pass, but the lower plate with its slit at right angles only permits a point of this line to pass. In this simple way, and without any lens or other optical means, a well-defined point of light is obtained. Then underneath these two plates we have a clockwork arrangement which passes a narrow band of sensitive bromide paper from one roller on to another. When the boom is stationary this point of light traces a straight line down the middle of this paper band, but when the boom swings to one side or the other, this point traces out a wave-like path, which is accurately recorded on development of the paper. The clockwork runs for a week, and records every hour along the side of the band. The paper travels at the rate of 1 millimeter a minute, so the rate of swing can easily be measured. The instrument is therefore self-recording. When properly adjusted the instrument can be made to synchronize with earth waves originating as far away as Japan, for instance. In fact, the Professor may observe certain earth waves ; such is his vast experience that he is able to form a very close estimate as to where the disturbance comes from. In fact, this has been done on several occasions, and he has been able in substance to say that presently we shall hear from such a place that there was an earthquake at such an hour.

" Discussing the volcanic theory of these quakes, he inclines to the view that they may both be results of the same common parent cause rather than one cause of the other.

" Birds are more sensitive to these earth disturbances that are quadrupeds. Cables at the bottom of the sea not seldom are snapped or injured by vast masses of submarine *debris* falling on and burying them—the result of an earth or sea quake. These correspond to landslips. Probably about 75 per cent. of these quakes occur where the coast is steep and the water deep. The period of the " wave " is frequently about twenty seconds, and may be compared to a great swell on the ocean. The period, however, depends on the distance of the observer from the origin of disturbance. And as the instrument must isochronize with the earth wave period, it is obvious that the same instrument cannot at the same time record near and distant places, though there is a considerable depth of distance available. Thus an instrument which the Professor has at his home in the Isle of Wight, and adjusted for such distances as Japan. is not materially disturbed by carts passing within a short distance. The further the centre of origin, the longer the premonitory tremor record. " HERMES."

A FEW WORDS ON EXPOSURE FOR AMATEURS.

SERGEANT FREDERICK M. JONES, SIGNAL CORPS, UNITED STATES ARMY.

IT is easier to give advice than to follow the advice of others, especially when it comes to photography. How many are there who can take the book of instructions, and, following it, meet with success from the first? Very few. A great deal of knowledge can be gained by reading about developing, printing and toning, which will be of great assistance, but nothing definite can be written concerning exposure because there are no fixed rules governing it, and to meet with success in this line, practical experience and a good memory are required. A prominent photographer says, that it is not possible to give a correct exposure because no object photographed can be equally illuminated, and especially those which present many different colors; but this is bringing matters down to a fine point. What we desire and what we strive after, is to get a good negative, as perfect as possible, by a normal exposure, but to obtain this result, four things must be taken into consideration: 1st, the intensity of the light which illuminates the subject; 2d, the sensitiveness of the plate; 3d, the character of the subject to be photographed, and, 4th, the effective aperture of the lens. These four things, and, above all, the first, which must be observed to get a normal exposure, cause one to think; and no matter how good the judgment may be, failures will present themselves to the most experienced photographers.

A normal exposure is one that gives, after being properly developed a negative having the variations of light and shade similar to those in the object photographed, and the details in the shadows prominent enough to show up well after printing; and if we can get this we are well satisfied with our work.

Under the variations of light, one must be possessed of infinitely good judgment to make a correct exposure on every plate, especially in winter, when the light is very weak and the cold has to be taken into consideration also. At this time one is often in doubt and a little help is very acceptable.

This help can be obtained with a very low percentage of failures, not to speak of the satisfaction felt at not having one's money and time wasted by the use of the actinometer or exposure meter. The majority of amateurs look upon these instruments with suspicion, but after seeing the Wynne's actinometer put to practical test and using it for a year, I have come to the conclusion that it is one of the greatest boons to photographers that was ever invented.

For use during the spring, summer and fall it is perfectly reliable, and will indicate the correct exposure every time; but during the cold weather I found, after having several under-exposed plates, that allowance had to be made for the low temperature by the addition of about half as much time as the meter indicated. The reason I suppose why no allowance was made for cold weather by the inventor is because the instrument, which is of English manufacture and used more in that country than here, has not there the severe cold to contend with that we have.

The value of the light is determined by one movement, and excellent work can be done with it, notwithstanding the fact that photographers who are prejudiced against its use will tell you that it is misleading, because the bromide paper used is only affected by the illuminated atmosphere or white light and can be no indication to the effect of the light from the object photographed.

As a matter of fact the actinic rays that illuminate the subject are of the same value as the light which changes the paper from its original color to that of the tints, providing the instrument is held in the same light as the subject.

The habit should not be formed of using the meter every time an exposure is to be made, as it causes one to rely upon it entirely, and by not using his or her own judgment to gain no experience in this line.

Use it only when in doubt or under exceptional circumstances, and keep a record of the time and conditions of each exposure, so that under similar conditions the instrument will not have to be resorted to.

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THE GUM BICHROMATE; OR, DIRECT PIGMENT-PRINTING PROCESS.*

By Rev. F. C. Lambert, M. A.

THIS process is undoubtedly one of the most interesting processes for printing which lie open to the amateur who possesses some taste and a fair share of patience. Some two or three years ago attention (by means of one or two not very striking prints) was redrawn to this process in our English Salon. Since then several enthusiastic amateurs in England, France, Austria, etc., have been experimenting, and this year's Salon contained a somewhat unusual proportion of works by this process. These being of varied interest and degrees of success, considerable attention was thus concentrated in this direction. Mr. James Packham has for some years been steadily experimenting with the process with a view to putting matters on an exact basis. From his recent exposition of the subject before a crowded and deeply interested audience I make the following extracts, and supplement them by notes drawn from my own experience, which will be, it is hoped, sufficiently ample to enable any reader to experiment with this process :

Paper.—Speaking generally, a heavily sized paper gives harder results and clearer whites. Of the ordinary artist's papers the following are mentioned as being satisfactory :

Michallet.—A slightly rough paper, of the "laid" kind, showing two sets of lines, one set close together, the other at intervals of an inch or more. Size, 24 x 19 inches. In white color only.

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* A few prints made in the manner here described are in the possession of the Editor, and may be seen by anyone interested.

Ingres.—A paper very similar to Michallet, but rather lighter. In various tints, the white and cream being best. Size, 24 x 19.

Allongé.—A "wove" paper, the grain on the two sides being rather different. (Either side may be used, according to effect required.) Size, 25 x 19 inches.

Lallane.—A paper similar to Michallet, but lighter. Various cartridge papers. Whatman's drawing papers, etc., etc., may be used. Excellent results may be obtained by using a not too highly glazed sheet of note paper.)

Sensitizing.—A saturated solution of potassium bichromate is made. (This is usually of strength about 1 in 10.) The sheet of paper is immersed, all air-bells removed, the paper turned over once or twice, and allowed to remain in the bichromate bath about three minutes. It is then slowly withdrawn and hung up by one corner to dry, and to the lower corner a scrap of bibulous paper is allowed to adhere as long as any fluid holds it there. This paper is now allowed to dry in a dark place.

The Coating Mixture.—Gum arabic or gum acacia of the variety known as Soudan or Turkey is bought in "tears" or drops, not in powder. Of this take 2 ounces and reduce it to a rough powder in a mortar. Cover it with 5 ounces of water and stir occasionally until dissolved. Strain through muslin. Now take ½ ounce of this gum solution and ½ ounce of water. Now weigh out 12 grains of vegetable black. Place this on any flat surface, *e.g.*, a dinner plate, piece of glass, etc. Add a few drops of the gum mixture and work up the pigment to a quite smooth, thick paste, using for the purpose a palette knife. When quite free from grit or granularity, add the remainder of the ounce of gum mixture and strain through muslin into any convenient vessel, *e.g.*, cup or small jar. On a piece of flat board place a couple of sheets of clean blotting paper. Pin to this the sheet of bichromated paper (now dry, of course) and, with a flat bear's-hair (or flat, thin hog-hair) brush, apply quickly a coating of the gum and pigment as evenly and quickly as possible. By this time the paper will have expanded. It is now time to rearrange it with pins (thumb tacks), so as to keep the paper flat. Now, with a 3 or 4-inch badger-hair softener (or sweetener) go all over the still wet surface with a light, quick motion in all directions. The paper is again dried. When dry it is exposed or printed under a negative in the usual way. Printing shows slightly in the deepest shadows (thinnest parts of the negative), but an actinometer should be used, at any rate at first.

Development consists in washing away the unaltered gum from the paper. To do this the print is placed floating face down in a dish of cold water. In the course of a short time, which may be a few minutes or an hour or more, the picture gradually appears as the unaltered gum dissolves away. If the printing has been full, parts may not dissolve away as much as the worker would like. He may, if he likes, assist the part by a few gentle touches of a soft brush, or by pouring upon the part a fine stream of water, etc. When sufficiently developed or washed, the prints are hung up to dry spontaneously. Previous to drying, any bichromate stain may be removed by passing the print through a solution of alum, sodium sulphate, or even "hypo."

So far my notes are based upon Mr. Packham's lecture, and the demonstration which followed. I have also been experimenting on this process, and may at this point offer a few hints, which are thought likely to be useful to anyone who takes it up for the first time. The most likely fault to make is to use too much pigment in coating the paper. The grain of the paper should be seen through the coating. Printing should be full rather than under. As a rule, the paper takes longer than ordinary platinotype paper. The kind of negative suiting this process is thin and full of detail—softness rather than contrast is required in the negative. The well-known continuating action goes on, so that if a print be rather underdone at the end of a dull day, do not attempt to develop it until next day. Of course, any pigment which is not chemically affected by the bichromate may be used, but the experience of most who have used this process seems to point to the following as most satisfactory, viz.: Vegetable black, red and yellow ochre, burnt sienna, vandyke brown. (It is, of course, understood that we are dealing with dry powder colors.) The beginner is strongly advised to develop only by soaking in water, and not to attempt any brush work until some experience has been gathered. The chief advantages of this process are: 1st, we may mix our colors so as to suit the tint to the subject; 2d, we may select our printing paper; 3d, we can prepare the paper as wanted, *e. g.*, the day before using it (it keeps fairly well for several days, at least); 4th, we can remove with the brush any parts not required (*i. e.*, it enables one to apply local treatment to the print); 5th, the cost of material is very small indeed. By choosing a smooth or rough surface, we have considerable latitude of control of detail, etc. The process is capable of yielding results, with very fine detail, or very broad, soft effects; but it is a process which is not likely to rival many of the more common printing methods, except in the hands of those who have an educated eye and hand. In brief, it is essentially a process for the artistic photographer who knows how to handle a brush. Its disadvantages are: 1st, its rather slow printing; 2d, difficulty of seeing how the printing is going along; 3d, need for a soft negative. I have experiments on hand which encourage me to think, 1st, that the paper can be made more sensitive, and 2d, that an ordinary negative can be used. My results are not yet ready for publication.

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NEWS just received from India announce that the observations of the eclipse of the sun on January 22d were more than usually successful. The sky was perfectly clear and the conditions were all most favorable. The general shape of the corona was the same as in the eclipses of 1886 and 1896. Photographs were obtained on two different scales of the corona and several good spectrum photographs. The spectrum of the flash was photographed with a prismatic camera and a 6-inch telescope.

THE SILK PRINT.

By Th. Ameikos.

SOME of the most beautiful effects in photography are obtainable on silk and satin. There is a soft richness to silk prints that cannot, from the nature of the material, be obtained on any other substance. The soft, yielding texture of silk, combined with the shimmering lustre of its surface, adds a certain tone of subdued elegance to these prints that appeals at once to the discernment and good taste of lovers of the beautiful.

The possibility of their use covers a vast field, so vast that it has hardly begun to be explored, and the day is at hand when the decoration of a drawing-room will be incomplete without some sample of this the most beautiful product of the photographer's art.

With solar enlargement there is no reason why life-sized prints may not be made for large panels and hangings, and even without enlargement, beautiful work may be done by contact printing on large strips of silk by judicious matting and vignetting.

Imagine the curtain that I recently saw in the drawing-room of an enthusiastic Eastern amateur.

The body was of a soft material and old gold in color. For about a yard at the bottom it was covered with a solid width of maroon-colored silk plush, and a band of the same material, perhaps 8 inches in width, crossed it about 2 feet from the top. In the center of the space between these bands was a head of the amateur's beautiful wife printed on creamy white satin. This entire piece was about 14 by 17, and symmetrically arranged about it, were a large number of smaller prints (on silk) of various people, members of the family and their intimate friends, I judged. The prints were carefully stitched to the body of the curtain and had been beautifully embroidered.

There were some fine paintings in this drawing-room, and many other works of art, but I am free to confess that nothing else in the room, save alone the original of the centerpiece, so appealed to my sense of the beautiful as that curtain did.

The work had all been done by my friend, the amateur, assisted by his wife, from negatives made by himself, and he assured me that the process was extremely simple.

He sensitized the various fabrics with a set of solutions that he obtained from the inventor, a son of the late Homer D. Martin, the noted American landscape painter, who had patented them, but had as yet made no commercial use of them, and he further assured me that in an experience extending over several months he had met with no failures in using them, except such as were attributable to his own carelessness or failure to follow the instructions given him by the inventor.

Since that visit I have devoted considerable time to experiments in silk printing, and find it an extremely interesting occupation, and really, all things considered, no more expensive, and much more satisfactory than working on the emulsion coated papers, for there is no film to curl and crack, and the widest latitude is thus allowable in the temperature of the toning solution.

At first I met with a great deal of trouble from nasty yellow and brown stains that would appear on the prints, but I soon found that when I took the precaution to thoroughly cleanse the silk before sensitizing it, the stains failed to materialize. Now I can handle a whole batch of prints in the full confidence that they will all come out of the bath as free from stains or blemishes as they entered it.

The silk print has a great future before it. For portrait work it cannot be surpassed, and in the field that it is just entering—that of interior decoration—it will presently override all competitors. It is practically indestructible, for there is nothing in it, no film of a gummy or gelatinous nature, to succumb to the ravages of time or the inroads of destructive ferment germs—the print actually being a permanent dye of the silk, and, as such, is, of course, as permanent as the silk itself. The permanence of silk prints, their abiding beauty, and the vast number of uses to which they may be put, including the endless chain of things that young ladies embrace under the gentle title of "fancy work," make it certain that the day is at hand when they will be the most sought after of all the photographs.

The Martin solutions may be obtained of our publishers.—EDITOR.

SNOW PHOTOGRAPHY.*

By T. MORLEY BROOK.

THERE are not many, if any, photographs more beautiful than a really well-executed photograph of a snow-covered landscape, and though of late we have seen more of them than previously, they are still, comparatively, rarely to be seen well done. Only a few days ago I was at an exhibition containing some seven hundred photographs, and there I saw mud-puddles, nocturnes, mountain scenery, sea and landscapes, and figure studies, etc., galore, but after much searching I only found four frames containing photographs of snow.

In order to secure a snow-covered landscape, it is necessary to tramp through the snow heavily laden with camera and plates, and this seems to act as a deterrent to most. Cold! Yes, it is cold when you first leave the warm fireside, but very soon the exhilarating effects of the crisp, frosty air and the exertion of plunging through the snow begins to take effect and make one feel quite young again, no matter how old one may be in reality, and fully compensates for any little discomfort experienced; and another compensation is the feeling of virtue that fairly glows in one at having overcome the disinclination to leave the cozy room. The weather prophets are promising us plenty of frost and snow in the early months of the year, so now is the time to make the few preparations necessary.

It is easy enough to make a snowscape of a sort. All there is to do is to give a short exposure and develop in the usual way, and there you have a series of dark and white patches without any gradation. This any one can do without thought, but to make a picture that will fairly reproduce all the delicate gradations there are in snow, and at the same time to get some amount of detail in the tree trunks and in the uncovered parts of the ground, is by no means such an easy matter. "As white as driven snow" is a common saying, and nothing could be whiter, it is true but white as it is, it must be remembered that it can only reflect such light as it receives, and the amount of light received varies considerably in a landscape from differences in the angle made by the undulations from the source of light, and so the snow of a snow scene ought to be as full of gradations as any other kind of a landscape. On the other hand, in the parts not covered by snow there should be some detail showing. This need not be so much in evidence as if there were no snow, as the great glare of reflected light from the snow partially blinds the eyes to detail in the extreme darks, and, of course, detail that cannot be seen, though we know it to be there, should not be reproduced in the photograph. The thing to aim for in snow photography is so to expose and develop the plate as to register the longest gradation of light and shade that can be reproduced by photography on paper or transparency.

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* *The Photographic News.*

In my experience, a slow, thickly coated, well-backed isochromatic plate gives much the best result; in fact, to get all, or even the major part of, the delicate gradation in the high lights, whatever plate is used, it must be backed, as what is most to be feared in snow scenes is halation or blocking up of the high lights, and it is gradation in the high lights that is more particularly wanted in this case. As to exposure, the golden rule, "Expose for the shadows, and the high lights will take care of themselves," must almost be reversed in photographing snow scenes. Here we must expose for the high lights, and not exactly leave the shadows to take care of themselves, but expose as long as we dare, but not so long as to risk the obliteration of the details in the high lights. This will prove but a very short exposure; in fact, somewhere about the same as one would give to a similar subject in midsummer.

And now as to development. Here the greatest caution is necessary. Two things are to be avoided—first, that development is not carried far enough, and so the snow will not appear white anywhere; and secondly, that development is not carried too far, so that the details in the high lights are blocked out, leaving the snow in the print one uniform white mass. This means complete failure. Develop slowly with developer weak in both alkali and pyro, and when all desired detail is out add more alkali and pyro, or, in case the newer developers be used, finish off with hydrochinone to get density, bearing in mind that in no kind of photography is the matter of density of so much importance. Rather err on the thin side than on the too dense. What is wanted is that the highest lights shall print pure white, but no more, or some of the details will be lost; and another thing that must not be forgotten is that isochromatic plates are much more sensitive to the light used in the darkroom than an ordinary plate, so it is advisable to keep the dish protected from the light while developing, merely removing the cover for a few seconds occasionally to see how development is progressing.

In printing is it necessary to point out that warm tones are not in the least degree suitable to represent snow or frost? I have seen them printed in bright red, and that in a photographic weekly conducted by a professed teacher of the art side of our science. These seemed to me at the time just the worst color that snow and frost could be printed in. I take it that there cannot be a doubt on the subject, that black and grays most fitly represent the cold tones of frost and snow, and therefore recommend platinotype, bromide, or carbon papers exclusively. If the printing has to be done in winter, then bromide is by far the most suitable and convenient. Carbon takes long in printing when the light is poor, and it is most difficult to protect platinotype from the damp; and as to the resulting print, I defy anyone to distinguish the one from the other when framed and hung on the wall. As to the permanance of bromide paper—well, I have several enlargements made some ten years ago, hanging on a not too dry wall, and at the present time they are as bright and clear as they were the day they were made; there is not the slightest sign of fading, either in the image or paper. I firmly believe that, if properly fixed and washed, they are quite as permanent under ordinary circumstances as either carbon or platinotype.

FLASHLIGHT PHOTOGRAPHY.

THE following letter, which appeared in the New York *Sun* of January 6, 1898, is reprinted by permission, as it fills a needed place in the photographic literature of the day :

" *To the Editor of the Sun :*

" SIR,—For several years I have noted the frequency of accidents occurring in the use of flashlight powders for photography, and more recently the explosion of a magazine flash lamp in a church in New York City.

" Explosive engineering in all its branches having been followed by me for upward of twenty years, I have investigated all such occurrences as closely as circumstances would permit, and believe that a few remarks concerning flash powder explosions may be of interest and serve their purpose, especially at this season, when indoor photography involving the use of flashlight is at its height.

" The possibilities presented in flashlight photography are destined to make it more and more popular. There is no reason why it should not proceed uninterruptedly, provided those who undertake it not only select their materials with proper care, but also post themselves thoroughly in the practical manipulation of the powders.

" Investigation shows that many accidents, some of which have resulted fatally, are caused by using dangerous flashlight compositions. Some such have been placed on the market for general use. Other accidents are caused by an all-too-ambitious desire on the part of those who know little or nothing of powders or their composition to mix up a flash powder. Still others are due to carelessness in the use of the powders.

" I would strenuously advise those who purchase flash powders to insist upon determining their safety. If they are dangerous compositions, they should not be considered for an instant. The ambitious but ignorant person should remember that the chemistry of powders of any and all kinds is a distinct branch of science, to be mastered only by the most careful study. Unless he is in a position to spend the necessary time in studying the essential principles, he had better abandon the idea of making flash powder, and purchase a safe and reliable product. I have heard of flash powder being advertised as safe because it can be eaten. It contains chlorate of potash, which is sometimes a remedy for sore throat, but this same chlorate of potash used in any kind of powder is extremely dangerous. With great care accidents may be avoided, but the danger is there lurking, and history is too full for enumeration of accidents that have happened.

" The abuse of flash powders after they fall into the photographers' hands reflects severely upon their intelligence and good sense. I would urgently recommend to photographers, professional and amateurs :

" 1. The observance of the greatest care under all circumstances.

" 2. A thorough series of private experiments before making any demonstrations or taking any flashlight pictures, with a view to acquiring knowledge and confidence.

" 3. To remember that a flashlight powder is intended to burn when it comes into contact with a flame or a spark ; and to keep carefully the powder and the flame or spark separated by a respectable distance until the moment arrives when the picture is to be taken.

" 4. Never to use any flash powder containing chlorate of potash. Accidents are liable to happen, and the fumes are very corrosive, therefore likely to injure curtains, hangings, etc.

" 5. If you have an assistant, do not trust to him any part of your flash-powder work, unless he knows the work practically.

" 6. Never use a compounded flash powder in a magazine lamp. It is intended only for powdered magnesium.

" Flashlight photography is now playing such an important part that it may almost be looked upon as a necessity. It certainly will be such at no very future day, and I am in hopes that some benefit may be derived from what I have written, which is intended as ' a word to the wise.'

" SAMUEL RODMAN,
" *Formerly First Lieutenant Second United States Artillery.*"

NEW YORK, January 5th.

FAILURES IN THE NEGATIVE PROCESS.

By H. D. Farquhar.

THAT great care and cleanliness is essential in all branches of photo-engraving is well known by experienced operators, but this especially is the case with the photographic branch of the process.

The cameras, lenses, plates, etc., are of necessity more or less exposed to the influences of dust. Frequently when the camera is pushed together, dust that has been allowed to collect on its interior arises and settles on the plate, causing holes and spots.

The plate-holders, when not properly taken care of, cause an endless amount of trouble, as the silver solution drips from the plates and penetrates the wood, causing decomposition, by which, with continued action, organic substances are formed which dissolve in the liquid dripping from the plates, and on exposure eventually reach the plate, giving rise to what is known as mossy spots.

To prevent the corrosion of the holder, each plate should be well drained, and the surplus solution on the back removed with blotting paper. After each exposure the silver solution that has found its way to parts of the holder other than the trough should be carefully wiped with absorbent cotton. At least once a month those parts of the holder that show signs of decomposition should be coated with shellac varnish or paraffine.

The most frequent trouble met with is fog, which is a precipitate of silver covering the entire plate. The causes are many which would produce this result. The collodion is, perhaps, alkaline: add a few drops tincture of iodine. The bath is alkaline: add a few drops of nitric acid, c. p., until it shows decidedly acid by testing with blue litmus paper. The bath contains organic matter: add 1 part permanganate potash, dissolved in 50 parts water, one drop at a time, shaking after each addition; the first drops will immediately lose their color; continue until the last drop retains its color. The bath is now filtered, and will be found to work well if very little permanganate has been added. If, however, it is found necessary to add a large amount before it holds its color, it indicates that considerable organic matter was in the bath. In such a case it may be necessary to add a few drops of acid, as the potash acts as a neutralizer.

The darkroom admits light, perhaps; or too strong a light is used; or the camera or holder admits light; or possibly light enters the lens, which will happen when the electric lights are placed in front of the lens, or when placed opposite a window from which they are reflected.

Dirt spots on the edge of the plates are caused by not properly cleaning the rough edges, and allowing the plates to rest on dirty shelves or blotting-paper. Scratches in the glass and dirty dusting brush, give rise to streaks in the direction of the dusting.

Rat-tails (short, crooked black lines) come from using impure albumen in albumenizing the plate.

Bright irregular spots are caused by dust settling on the plate after it is sensitized.

Collodion that works well at first and then gives bad results, comes from impurities that are carried back into collodion bottle when coating the plates. To remedy this, use a filtering collodion bottle.

Want of sensitiveness is caused by old, dark red collodion.

Diagonal streaks in the direction of the corner from which the surplus collodion was allowed to drain, show that the plate was not rocked properly while being coated.

Dirt in the collodion or in the mouth of the bottle will cause black, irregular spots.

Inferior gun cotton and an acid bath make the film adhere badly to the plate.

If, upon removing from the bath, the plate appears transparent on the margin, it is because it was not placed in the bath soon enough.

(*To be continued.*)

PROCESS NOTES.

By Rev. F. C. Lambert.

Mr. Sanger Shepherd, on November 26th, gave an able paper before the Royal Photographers' Society (London) on "Triple Printing Methods." From the lecture (and discussion following) the subjoined notes are penned as being likely to be of practical interest to process workers generally.

The idea of making pictures in all colors by the three-color mixture method was generally attributed to Clarke Maxwell, but probably Du Hauron had previously suggested this idea. It was, however, to Ives that we owe the practical issue of the matter, who had worked out the problem in a masterly manner. Of the various methods of printing in three colors, the lecturer thought that the greatest promise lay in the direction of the Woodburytype method. He himself had worked out a modification of the method, which seemed likely to be most successful. In brief, his process was somewhat as follows: A stout sheet of gelatine is sensitized with a chromium salt in the usual way, and then squeegeed on to thin (talced) glass and dried. It is now printed under a positive, and, moreover, it is printed through the sheet of microscopic glass, to which it is still adhering, and is developed in the usual way with hot water, giving a gelatine mould in fairly high relief. From this is made, with very finely ground plaster of paris ("dental plaster") a plaster cast. A mixture of graphite and sulphur is made and melted, with much stirring, until the two are intimately blended. It is now steadily heated through the viscous stage until it again becomes quite limped. It is now poured into the plaster mould, and the upper surface kept hot, while the lower surface, in contact with the matrix, is becoming solid, so as to prevent uneven contact or shrinkage. We have now a printing matrix of the Woodburytype order, from which any number of similar prints can be made of a uniform color or tint.

Drying the Tissue.—It is desirable to dry the gelatine sheet fairly quickly, or it may become insoluble before being printed. He advised the following method of drying:

Instead of using lumps of calcium chloride (whose surface only gets wet, and action consequently slows down), he employed many rather small pieces of pumice stone previously dipped in a strong solution of the calcium chloride and dried. In this way a large area or surface is exposed, and acts quickly and uniformly. Another speaker suggested the employment of asbestos cloth dipped in calcium chloride solution and dried.

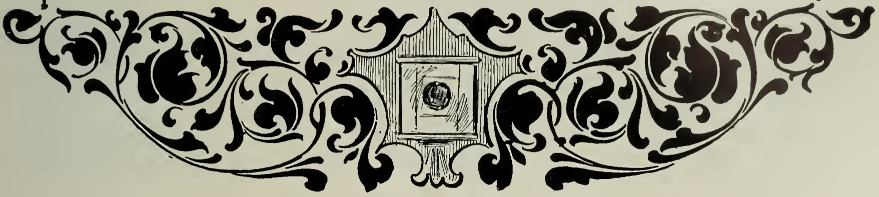
The Chromium Salt.—Another point was noteworthy, viz., that if the potassium bichromate was used, the tissue more quickly became insoluble than if the yellow chromate were used. This latter salt allowed a longer time for the drying.

The sensitive plates used for making the negatives might be especially orthochromatized, or the ordinary plates might be used. The former gave quicker results. But, on the other hand, while the exposures were considerably prolonged on account of the light filters, yet the great advantage lay in uniformity of gradation. This was a matter of the greatest importance where fine results were desired. If this point were not carefully attended to, it would be found that the high lights, pale grays, etc., would be color tinted.

Mr. Ives dealt at length with the question of color screens or filters. In brief, he would recommend the three following as generally thoroughly satisfactory:

For the red filter he employed a solution of brilliant yellow, containing some fuchsine. For the green region he found that chromium-green glass was satisfactory. But glass of this kind varied very considerably, and consequently had to be selected for the special purpose in hand. With this he also used a small portion of brilliant yellow. For the violent end of the spectrum (including the ultra-violet rays, which had also to be cut out), he again employed green glass, but of a much paler tint; and with it, to cut out some of the spectrum towards the red end, he used solutions of aniline violet. The actual quantities could only be arrived at by photographing the spectrum. The proper kind of negative to aim for was what might be described as of the lantern slide or transparency order. This was also a matter of importance in obtaining satisfactory color mixture.

SOCIETIES



THE annual exhibition of the Photographic Society of Philadelphia was held during the first week in January, and consisted of nearly two hundred prints, arranged in five classes. One of the most notable features of the year is the distinct advance in the development of artistic photography, the work shown being unusually snappy and artistic.

* * *

THE new club rooms of the Sacramento Camera Club were thrown open to the public on the 22d of December with an exhibition of the work of its members. A large attendance was the result, and great interest is manifested in photographic work in this section of the country.

* * *

THE third annual meeting of the Syracuse Camera Club was held on January 7th, and the following officers were elected for the ensuing year: President, H. B. Buell; Vice-President, J. I. H. Wright; Secretary, Daniel H. Sweet; Treasurer, J. E. Bierhardt.

* * *

A NEW club has been formed in Kansas City, made up of about fifty of its leading amateur photographers under the name of the Kansas City Camera Club. The Club will have its darkrooms and apparatus, and will offer every encouragement to the growth of the art in that city. The officers for the year are: President, J. P. Reynolds; Vice-President, F. T. Childs; Secretary, J. C. Seaman; Treasurer, J. R. Loose.

* * *

WE understand that an amateur photographers' club has been formed in Norfolk, Va., under the name of the Portsmouth Camera Club. The list of officers is not yet announced.

* * *

THE Detroit Camera Club has elected the following officers for the ensuing year: President, E. Donald Roberts; Vice-President, Mrs. G. O. Pratt; Historian, Mrs. P. J. Sherman; Custodian, A. D. Noble.

* * *

THE Cooperstown (N. Y.) Camera Club has been organized with a membership limited to thirty-five members. The list of officers is not yet announced.

* * *

THE Richmond Camera Club gave a very interesting Lantern Slide Exhibition on the evening of January 12th, a large number of excellent slides being shown, and described by one of the members of the Club.

* * *

THE BULLETIN would acknowledge, with thanks, the courteous invitation of the Pittsburgh Amateur Photographers' Society to attend the opening of its first Annual International Salon and Exhibition at the Carnegie Art Galleries, Pittsburgh, on the 18th day of January. Owing to the force of circumstances we were only able to be present by proxy.

OUR
Reviewer.
School of Practical Process Engraving

THE 1898 "Annual of Anthony's Photographic Bulletin" is like unto its predecessors in the main, but, perhaps, in advance in the matter of illustration, which is reasonable enough. A frontispiece on Aristo Platino paper is a very charming thing, and eminently suitable for portraiture with the right sort of negative. The half-tone work is quite up to the fine American standard, and we must congratulate workers on the other side in having their productions so well rendered. What frequently strikes one is the way in which a firm in a (comparatively) out-of-the-way place in America turns out half-tone work. There is a bit of child portraiture, from a block in half-tone by W. C. Gage & Sons, of Battle Creek, Mich., the finest thing in the book, delicate and equal to a good photograph. We knew Battle Creek ever so many years ago, and cannot conceive how the place could have "raised" a firm producing such work. The literary contents of the "Annual" are various—in value and in subject. There are some interesting contributions, but a number that would not be missed. It is creditable that some of the good things come from the British side of the water, but, of course, this quality is shared by our cousins. There is a hint of value in "A Photographic Window Screen," by Eli Hirst." "A Great Dorset Abbey" is the theme of Rev. T. Perkins, M. A., and dealt with in his best manner. An interesting article is contributed by George Kilburn on "Home Portraiture for Amateurs." Most interesting and valuable is James M. Forbes' "In and Below Wall Street with the Camera." "The Gum Process" is dealt with by A. D. Guthrie. Alfred Watkins deals with "Modern Development." Mrs. Catherine Weed Ward very ably takes up the subject of "Tourist Photography in Great Britain." C. H. Bothamley treats on "Backing Plates," and his words are practical. Joseph F. Smith deals with "Photography of Clouds," and illustrates his work with excellent examples. "A Peep at North Wales," by Digby H. W. Cotes-Preedy, is most interesting. The "Process" section is valuable, to which contributions are made by Europeans of distinction in the work. Photographic tables and formulæ hold a good place, and are full and complete. The volume reflects the greatest credit upon its producers.—*Photography.*

"IT is a storehouse of interesting and instructive matter. It contains noteworthy contributions from popular writers of the day, and a large amount of practical information of value from many sources, a large number of formulæ of various kinds, a list of amateur photographic societies in this country and abroad, photographic tables of considerable interest, and many beautiful pictures illumine its pages. The section devoted to articles on process work adds to its practical usefulness.

"The present volume is distinctly good, and, we venture to think, excels in value others of the series. No photographer who is ambitious to better himself can read the book without profit."—*Snap Shots.*

"WE have had the pleasure of looking over the 'International Annual of Anthony's Photographic Bulletin," which is out for 1898. Besides a large amount of valuable articles and general information it contains many splendid reproductions of prize photos, also a very pretty photograph by the 'Dana' Studio. If photographers would devote more of their spare time in perusing the pages of such books as the above and neglect more the columns of the daily papers that contain narratives, principally of crime, their time would be spent to much better advantage."—*The News Monger.*

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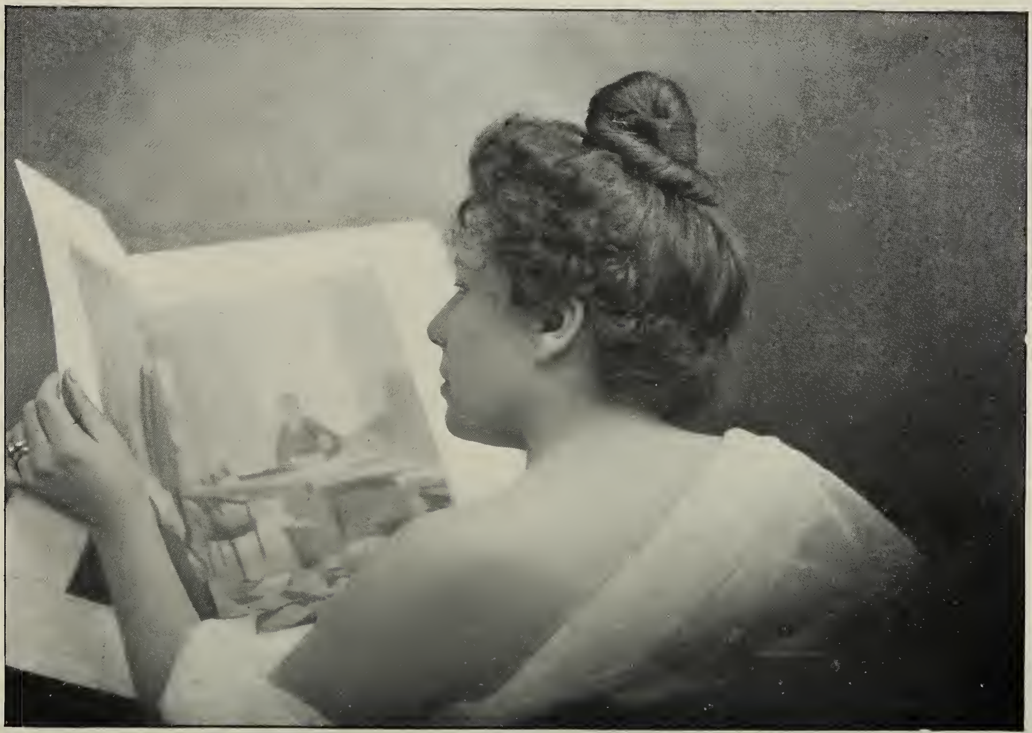

PHOTOGRAPH BY NEWMAN, NEW YORK.

STUDY IN LIGHTING.

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.

W. I. SCANDLIN.

VOL. XXIX. MARCH, 1898. NO. 3.

IS PHOTOGRAPHY AN ART?

IN view of the spirited and somewhat heated discussion taking place in the photographic press "on the other side," it seems pertinent to consider briefly certain phases of the question in its broader relations, with the object not so much of settling the fine technical points involved as of pointing out some of the ways in which our art-science has ministered to the advance of art throughout the world, and how it may be looked to as an active agent in the cultivation of higher aims and thought, more correct judgment of the great scheme of the universe, and a higher conception and keener appreciation of the grandeur and magnificence, as well as the marvelous perfection, in minutest details, of the world in which we live. Mr. H. P. Robinson well says that "all art is based more or less on selected Nature," and again, "Nature, to become art, must be filtered through the brain and fingers of the artist."

Given the same subject to any number of different photographers with which to illustrate the same theme, and how many varying pictures will be the result? As many as there are photographers, and some will be mere mechanical records of fact, while a few may glow with light and be filled with the sentiment of the theme illustrated, and instinct with an idealism, which in the majority of cases will be only conspicuous by its absence. Yet all this will have been the result of the same conditions, plus or minus that invisible element which we call art. Is it not a feat worthy of emulation to obtain such a likeness of the human face and form as will perpetuate the expression and characteristic pose so dear to individual friends, and, perchance, to nations, long years after life has ceased? And when so pictured as to be

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infused with the charm of ideality, possible only by one who is himself in sympathy with and actuated by the true art impulse, it seems that they must partake of the elements that give them birth, and thus become truly art works. The world has many such portraits in its galleries to-day, and, thanks to the impetus attained by our reproductive processes through which the salient features of the artist's work may be made known to such a wide field of students, the number will increase as time goes on. Each truly good effort helps to produce others, and the education which the public at large has derived and is constantly gaining from the wide dissemination of illustrations serves constantly to raise the standard of its requirements.

The same standard that applies to the human part of Nature may also be applied to her broader physical characteristics, the same scene being possible of interpretation in many various moods and phases. It is the art instinct of the portrayer that selects the mood most fitting to the subject; and so, entering into sympathy with the sentiment of his work, he produces results of which mere mechanical and chemical manipulations are incapable.

Examples of such work are numerous, and there are frequently being produced photographic interpretations of Nature which appeal to the artistic taste of the most fastidious with a power and directness that were impossible, did they not breathe the sentiment of art as a leading and all-pervading quality of their make-up.

All honor, then, we say, to those who, by their earnest endeavor, seek to give to their patrons, and through them to the world at large, THE BEST of which they are capable. In the natural course of progress the best of to-day will be out-distanced and improved upon to-morrow, but by patient study, earnest effort, and through many failures, we are bound at last to make good the claim that the photographer may be an artist, and his productions works of art.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

BY request of the Treasurer, we publish the following extract from the Constitution, and communication regarding the same. Article II, Section 7, reads as follows: "The annual dues become payable in January of each year. Any member failing to pay same prior to the adjournment of the annual meeting shall forfeit his right to membership, and can only be reinstated on payment of a new initiation fee, as in the case of new members.

"The Treasurer is now ready to receive dues of members and to extend to the fraternity the usual courtesies. Aside from saving the consequent annoyance and delay at the Convention Hall, early remittances will be greatly appreciated. All sending personal checks should add 15 cents for exchange."

George W. Varney, *Treasurer*,
3937 Drexel Boulevard, Chicago.

Items of Interest

The Annual Meeting of the Executive Committee of the State Photographers' Association of Ohio was held in the early part of February, on which occasion Mr. George B. Sperry, of Toledo, the retiring president, was made the recipient of a handsome bronze statue, in recognition of his services.

The new officers are as follows: President, L. A. Dozer; First Vice-President, George M. Edmundson; Second Vice-President, C. E. Martindale; Treasurer, C. L. Lewis; Secretary, W. K. Van De Grift.

The next Convention is to be held at Columbus.

The Third Annual Convention of the State Photographers' Association of Michigan has just been held at Jackson, Mich., and resulted in a very profitable and successful Convention. Professor A. H. Griffiths and others addressed the meetings which were fully attended.

The officers for the ensuing year were elected as follows: President, E. S. Tracy; First Vice-President, W. L. Smith; Second Vice-President, E. B. Ives; Secretary, C. E. Heath; Treasurer, J. F. Rentschler.

It is currently reported in New York circles that the Camera Club, whose official residence has so long been at 38th street between Broadway and Sixth avenue, have leased the eighth floor of the Bancroft Building, No. 3 to 7 West 29th street.

An extremely delicate and important instrument has lately been invented by D. T. Maring, of the Instrument Division of the Weather Bureau at Washington, by which the amount of sunshine is automatically recorded from day to day. The working model is a circular brass case, in which is enclosed an eight-day clock movement, which once in each twenty-four hours turns the outer cylinder, keeping a differential bright and black bulb thermometer constantly exposed to the sunlight. In the central stem of this thermometer is a narrow slot which is completely covered by the mercury as it rises with the increasing intensity of sunshine, and the varying height of which is recorded by a strip of sensitized photographic paper wrapped around the cylinder.

It is said that where gelatino-chloride prints refuse to strip from glass to which they have been squeegeed for purposes of enameling, an application of formaline, rubbed over the back of the print until it is quite saturated, will effect a release from the glass, and that, as soon as the print has been allowed to dry after application of the formaline, it will readily come off.

A COMPETITION of considerable interest to the craft in general is announced by the National Sculpture Society of New York, who propose to present a prize of $50 for the first and $250 for the second best photograph, the subjects to be of an architectural character entirely, and to include commemorative monuments, memorials, statues, groups, reliefs, busts, original works in museums, and architectural monuments with sculpture. Competition is open to all photographers, and exhibits are to be received up to April 25th. The exhibition is to be during the first two weeks in May. Full particulars may be obtained from the Secretary, Mr. Barr Ferree, 112 Wall street, New York.

* * *

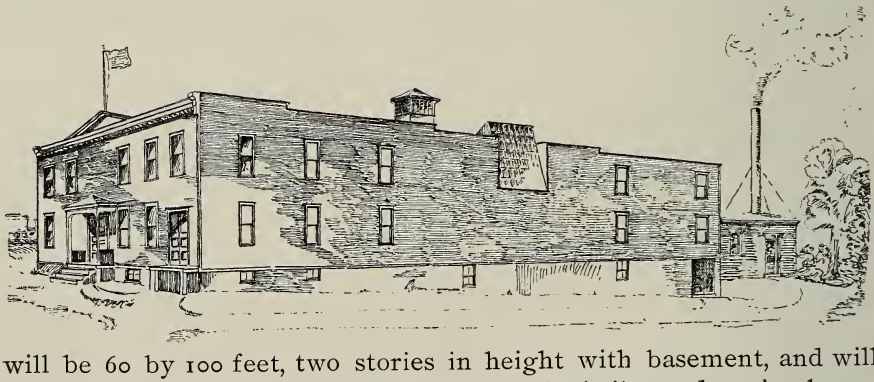
It is claimed by one who has tried the experiment, that the ordinary Welsbach light has excellent actinic qualities for photographic work, a particularly noticeable feature in its use being the amount of diffused light found in the shadows.

* * *

It is reported in the daily press that Mr. Thomas A. Edison has taken steps toward securing his rights in connection with kinetoscope and projectograph films and materials, and that one firm of users have agreed to pay him a royalty on his inventions used by them. Lively times are predicted before Mr. Edison and his lawyers have finished with the work of prosecuting all their claims in this direction.

LOVELL DRY PLATE COMPANY.

HAVING outgrown the capacities of the old plant by the increased business of the last few months, the Lovell Dry Plate Company have broken ground for a new factory at New Rochelle, N. Y., an outline view of which, as it is to be, is shown herewith. The factory will be 60 by 100 feet, two stories in height with basement, and will contain 18,000 square feet of floor space. The boiler and engine house is to be detached, which will do away with smoke, dirt and dust from fires in the building. It is to be equipped with all modern improvements, and it is expected that it will be running and making plates by the first of May. The company will continue to manufacture in their present building, however, until the new plant is completed and in running order, that they may be sure the output from the new plant is perfect before giving up the old.



UNCLE SAM'S STUDIO AND PICTURE GALLERY.

By James Eastus Price.

IN the middle northeastern section of the National Museum, at Washington, D. C., there is a large room, 60 x 60 feet in size, in which is arranged the collection that shows in entertaining object lessons the history of the graphic arts. Here can be seen more than two thousand specimens of different processes, from the earliest engravings to the latest and best of modern photo-mechanical productions.

An interesting and important part of this collection was donated to the Museum by Mr. J. W. Osborne, of Washington, D. C., who was not only an enthusiastic collector in this line, but who was also the inventor of the photo-lithographic process known by his name. A patent for this was granted the inventor on September 1, 1859, and on the 5th of November following, while Mr. Osborne was at Melbourne, Victoria, the first photo-lithographic map made for public sale was issued at that place by the Department of Lands and Surveys.

Previous to this there had been used with more or less success the processes of Macpherson, beginning in 1852; Fox Talbot, in 1853; Paul Pretsch, 1854; Poitevin, 1855; Poucey, Cutting and Bradford, 1858, and Lemercier, Barresville, Lebours, Davanne and Asser, in 1859. Those old lithographers but followed in the path of the first etcher on stone, Senefelder, whose genius made possible the lithographic history exhibit in the National Museum, where the evolution of the whole photo-mechanical idea—beginning with the bitumen process of Nicéphore Niepce in 1827—is so well displayed.

In this scientific picture gallery, where art and beauty invite attention, the tools, brushes, stones and other things belonging to picture-making are seen, carrying out the object lesson in all its detail, while the artistic sense is appealed to in productions, from the small pencil sketch to the half-tone and rare color prints of modern workmanship

But, although there is so much in the large graphic art exhibit hall relating to photography, the photograph itself is not seen there in any considerable quantity. This defect, however, will soon be remedied by placing in a vacant space, left for the purpose, a rare collection, which will illustrate the evolution of photography, from the time of Niepce and Daguerre to its present state of perfection.

With the valuable collection of photographs, American and European, one thousand two hundred and eighty-four in number, including two hundred daguerreotypes, between forty and fifty talbotypes, or calotypes, and other rare specimens—there will be exhibited some old cameras, which have caught the forms and faces of thousands who have long since joined the great majority. One of the most interesting of these apparatus is the first camera used in the United States. This was made by Morse, of telegraphic fame, who went to France, where he saw Daguerre and got from him the plans for making the apparatus.

The photographic establishment of the National Museum is situated in the upper portion of its northeast corner. Here Mr. Thomas W.

Smilie, the Museum's photographer, has his office; and here various kinds of work is done, for the exhibits, for illustrations for scientific books, etc., from that which includes photo-micrography and form-inifera to that which makes an 8-foot picture. The cameras used range in size from the smallest to largest variety. The one most employed is of the vertical pattern, mounted upon an ordinary square wooden frame, with the lens pointing to the floor, whereon are placed the objects to be photographed. The arrangement for light for this is very simple, consisting only of a side window and ordinary roller curtain. This camera was invented by Professor Baird, who was for many years, and at the time of his death, Secretary of the Smithsonian Institution. But notwithstanding this fact—concerning the invention—the latter has recently been patented in England.

The Museum's camera-room is large and well-lighted. It contains, besides the usual apparatus, a glass-covered table, about 4 x 10 feet in size, which is employed in printing large blue prints, or a great number of small pictures, at one operation. The table is set upon wheels, so that it can be rolled out of the window to the roof, where the sunlight is unobstructed.

Near the camera-room is the darkroom, from which have already come twelve thousand negatives, now in possession of the Museum. This room contains everything necessary for perfect work. The outer light is admitted to it through a stained-glass window, through which the Medical Museum and part of the grounds, where stands the Daguerre monument (erected at a cost of $15,000 by the American Association of Photographers), can be seen, looking rose-colored and beautiful.

Besides the working-rooms mentioned, there are two others—one at the extreme top of the building, where line work and other negatives are finished and printing done, and one lower, where prints are trimmed, mounted, etc.

The dry-plate process is used for all the work done in the Museum, for, as Mr. Smilie informs me, it is quicker, and perfectly satisfactory in results.

A number of the daguerreotypes and talbotypes, which will add so much to the interest of the photographic exhibit, are now kept in the camera-room. Among the most valuable of these treasures is a daguerreotype of the inventor of this process. It was made by the Meade Brothers, and presented to the Museum by Cramer, who paid $500 for it. A very fine series of daguerreotypes, made in 1852–3, and showing connected views of the City of San Francisco, forms a beautiful portion of the collection, as do a series of portraits made in Alexandria, Va., in 1856. The latter present a more life-like appearance than most modern photographs. And, indeed, on the whole, the old daguerreotypes shown here, though made so many years ago, are more pleasing, at least to my eye, from a point of detail and delicacy of tone, than anything in latter-day photography. It is the one process that will stand enlarging without showing in the result the rough surface that is brought out when the picture made in the present scientific age is enlarged.

One of the very interesting specimens in the talbotype part of the exhibit is a view of Pembroke College, at Cambridge, England, taken in 1840. This picture was sent by Talbot to this country, to be used as a basis of transaction when he sold (for $10,000) the right to use his photographic process here.

There is another object, which would make a most charming and appropriate addition to the photographic collection. This is the famous "Genius of Photography," a bronze statuette, once the property of Disderi, the French photographer, and now owned by Mr. Smilie.

Disderi was court photographer during the reign of Napoleon III, and by his work many of the faces and figures of the *hau ton*, the great and the beautiful of gay Paris, have been preserved to posterity. He employed for his work the daguerreotype, and by his business ability accumulated a large fortune. This he spent in dissipation and luxurious living, surrounding himself with objects of art and beauty, and died in poverty. While at the height of his prosperity he had the Genius of Photography made by L. Cocheret, the sculptor, and when he died this exquisite bronze was sold with his other effects.

For a long time the statuette was lost sight of, but was discovered by accident in an old curio shop in Paris by Miss Benjamin Johnson, of Washington, D. C., who, upon recognizing the treasure as Disderi's lost work of art (of which only one cast had been made), purchased it at a cost of 500 francs. The original cost was eight times this amount.

The statuette is in form of a draped female figure, and is 18 inches high, resting on a base, at which is a chemical retort. The head is covered with a coronet, representing a gilded sun, while the left hand, resting on a half column, holds aloft a photographic lens. On the face of the column are the following famous names: Porta, who invented the camera obscura; Nicéphore Niepce, the discoverer of the asphalt photographic process; Daguerre (whose workmanship is in many respects still unsurpassed); Talbot, who made duplicate photography possible; Niepce de St. Victor, introducer of the albumen process, and Lafon de Camarsac, to whom we are indebted for the discovery of the process for photographing on china.

Among many other old and rare treasures, Mr. Smilie has a pamphlet on photography, written and published by Daguerre, and a copy of the first photographic journal printed in America. The latter publication was called *The Photographic and Fine Art Journal.* The copy which is here mentioned was issued in New York in 1858. On the upper left-hand corner of this is printed the city delivery stamp, which reads as follows: "Bank and Insurance City Post, No. 50 William street."

The position of photographer to the National Museum is no sinecure, for the many calls for his time and talent furnish work enough to keep him busy. But, notwithstanding this, Mr. Smilie, who organized the Museum's photographic branch, and who has been there continuously since 1869, finds time for scientific investigation in connection with his work, and for keeping thoroughly posted on all new ideas that develop in the photographic world.

HINTS FOR USE UNDER THE SKYLIGHT.*

By W. C. Farrand.

TO put on paper practical ideas on photography is a task which I have never yet attempted, but if I can offer any suggestion of value from the small stock I have on hand in connection with head-and-shoulder posing and lighting, I shall be happy.

Will it be considered a little old fashioned for me to go back to the oft-repeated question, "What makes my mouth so crooked?" or "look at that eye; I am sure my eyes are both alike?" These faults can be overcome to a great extent by a slight manipulation of the light. When your subject first appears before you, make an effort to transfer a pleasant expression from your own countenance to his. If your efforts be successful, you will instantly notice when his or her face lights up that there is a difference—in most cases a brighter side. Sometimes the more pleasant or smiling eye will be the smaller, but more often you will find the best expression in the larger eye or on the side where the brow is more elevated. In either case, it is a good plan to place the subject so that the small eye will be on the shadow side. We all know that by so doing we do not exaggerate the difference in the size, but seem to equalize them. You can thus make a "Rembrandt" from the side with the small eye, or use a broad or plain light from the other side. The contour of the hair and head, as well as the face, plays a very important part, if you will but notice these small things before your subject is placed in position. If you have to deal with a stout person with a short neck, always stand them for a bust picture. It will give a better proportioned neck. You will thus avoid the great error of tiring them, and you will observe a great difference in the expression, and a look of satisfaction that seems to signify that they feel they are in good hands. Perhaps they will tell you so before they leave, or if the sitting is a failure, you have not lost your customer. They will return, perhaps bringing another. Keep them happy always. It is not a bad plan to ask a person their idea of a picture, or what view of the face they would like. This will often throw them off their guard and disarm them of the combativeness with which they have equipped themselves. I have often heard the remark, "Most photographers are so surly or so cross;" and we cannot do better than to follow the suggestion made by Mr. J. Ed. Rösch at the convention last year, when he said: "Smile with your customers." I think it a mistake for an operator (when an amateur sitter or any sitter makes a suggestion) to figuratively grab and throw him in a chair, intimating that "perhaps you know more about the business than he." It does not look well. It may be there are some details that you do not at once appreciate, and you thus lose the opportunity of satisfying a particular customer.

Then there is the sitter with the crooked mouth. If you again put the side that is raised (the short side of the face) in the shadow, turn his back toward the light, balancing the head toward the shadow and bringing it around, facing the camera, you will find the mouth assumes a more horizontal line. With a lady you can either do likewise or square the shoulders, facing the camera, balance the head toward the back, and turn it over the shoulder on the shadow side. This latter pose is not, as a rule, appropriate to a man.

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* Reprinted by permission from *Photographic Mosaics.*

Then there is the burnt cork for crooked noses, prominent cheek bones, or protruding ear. It often happens that you will have a very thin or angular-faced man who possesses a very good outline of the cheek and chin, and yet is the unhappy possessor of the protruding ear. By slightly burning a piece of cork (so that the black will just come off) and applying it to the light part of the ear until it runs into the shade of the background, you will be able to accomplish the desired effect. It is also better to treat such a subject as this with the "Rembrandt" light, as the ear nearest the camera will be in the shadow, and consequently not so prominent. You can, by carefully using this method, round a sharp cheek bone or straighten a broken nose.

I think we ought to make more three-quarter figures of men. Many men you meet impress you at first glance with their figure, the way they carry themselves, the ease with which they sit when conversing, the manner in which they use their hands, and the character which shows from the shoulders down to the hips. These features can be easily brought out in a three-quarter figure pose, whereas they are lost in a simple bust picture ; in fact, I often find I can get a great deal in a head and bust picture when I can catch a characteristic pose of the body. For instance, if you manage to get your sitter in an easy chair, or an ordinary chair, with a small table or pedestal alongside, engage him in conversation ; or if he will not talk, lose your dignity for a moment and fall over something ; do anything to rid him of that "what shall I do?" expression, or photographic stiffness. It does not take a great amount of time, and you will notice several poses which will balance nicely with very little fixing.

OBITUARY.

WE note with regret the death of Mr. John H. Ryder, one of Cleveland's veteran photographers, which took place on the last of January, after a short illness. Mr. Ryder was a brother of James F. Ryder, so well known to the profession, and was only sixty-four years old at the time of his death.

* * *

Mr. J. W. Perkins, who is said to have been the first photographer in the State of Georgia, died at his home in Atlanta on the 4th of February, after a short illness. Mr. Perkins went to Atlanta from Norwich, Conn., in 1852, since which time he had been a resident of that city, in whose welfare he took an active and prominent part.

THE PHOTOGRAPHERS' COPYRIGHT LEAGUE.

THE following communication from the Executive Committee of the Photographers' Copyright League of America cannot but be of great interest to every member of the profession who believes in protecting the work of his brain and hands. The question of copyright is a vital one to every person engaged in photographic work, and it is to be hoped that those who are contributing their time and labor in the effort to obtain legislation which will enable the producer of work having a market value to reap the rewards of his labor, may have the hearty support and co-operation of their brother photographers.—Editors.

There are now before Congress two bills to amend the copyright act. The Shafroth bill provides: "That a photograph, as such, made from any subject not a work of the fine arts, and not a part as illustration in any regularly issued publication, which is duly entered at the post-office at its place of publication, shall not be the subject of copyright at all."

The Hicks bill provides: "That a line production published in a daily newspaper of a photograph made from an object not a work of the fine arts shall not be considered as a violation of the copyright of such photograph."

The Shafroth bill denies to the photographer the right to protect his own creation by copyright, but gives such right to other publishers—presumably without his consent—and presents the anomaly of copyright on a reproduction while denying it on the original work.

The Hicks bill seeks to give the daily newspapers the right to reproduce and print copyright photographs without payment or credit to the photographer who makes them.

Both these bills are so manifestly unfair to our profession that united action should be taken at once to defeat them.

The demand for our work for purposes of illustration in newspapers and other publications, great as it is to-day, is continually on the increase, and there is no good reason why it should not be paid for as well as other material.

The Photographers' Copyright League of America has for its object the protection of its members from unprincipled publishers, who will, unless resisted, take for their own use and without payment such photographs as they may think suitable for their profit and advantage. It has already enrolled among its members many of the leading photographers of the country. It is prepared, through its Secretary and counsel, to advise and instruct its members in the details of copyright, and to bring suit for infringement in their behalf whenever necessary, as well as to promote, through its Executive Committee, such legislation as may be needed to protect our interests.

At the annual meeting, February 3d, the by-laws were amended to read: "There shall be no annual subscription, but the working expenses of the League shall be met by voluntary donations," thus throwing open the benefits of the League to all who will subscribe to our principles.

While the League has now a most influential and representative list of members, its moral force and weight can be strengthened if every man of note in the profession will associate himself with us. We therefore invite every photographer who demands the right to say who shall profit by the product of his thought and skill to join us. This may be done by sending your name to the Secretary with a request that you be enrolled in the League.

Meantime, the League is actively engaged in efforts to so modify the proposed amendments to the copyright act as will properly safeguard our rights.

B. J. Falk, *President;*
George G. Rockwood, *First Vice-President;*
William H. Rau, *Second Vice-President;*
S. L. Stein,
W. M. Morrison,
Louis Thors,
Executive Committee.

Charles E. Bowles,
Secretary and Treasurer,
244 Fulton Street, Brooklyn, N. Y.

DRAWING OVER PRINTS ON SALTED PAPER WITH INDIA-INK, AND SUBSEQUENT BLEACHING.

By Dr. Eder.

IT is an old, well-known method, by which silver prints are drawn over with India ink, the nitrate of silver bleached out, and the remaining India ink drawing used as such, or as an original for reproduction.

It has been proposed in some of the photo journals of recent date that bichloride of mercury solution be applied for bleaching the silver prints. But experiments made in that direction at the Imperial Institute gave results which were decidedly inferior to those obtained by the application of other bleaching means. Farmer's reducer and cyanide solution were either of them to be preferred.

The manipulation is as follows:

A fixed but untoned print upon salted paper (arrow-root or matt) is drawn over with a pen and india-ink, and, after drying, is put into a solution of 100 cubic centimeters fixing soda (about 1:8), which, immediately before use, is mixed with 10 to 15 cubic centimeters of a solution of red prussiate potassium. The silver print disappears rapidly and entirely, and leaves the india-ink drawing. It is then washed with water (without injuring the india-ink drawing) and dried. A cyanide potassium solution of 4 per cent., mixed with a little tincture of iodine, will act in a similar way.

In both cases the silver picture is entirely dissolved and removed, while bichloride of mercury bleaches the picture without removing the silver parts; thus, in the former case, the reproduction succeeds, as a rule, easily and more precisely than in the latter case.

Translated by
Henry Dietrich.

DR. SELLE'S PATENT ON THE PROCESS FOR THE PRODUCTION OF PHOTOS IN NATURAL COLORS.

THE process consists principally of two functions:

1. The taking of a negative.
2. The printing of the positive.

Three negatives are made in succession, behind each a red, green and dark-blue light-filter. The positive is obtained by producing three positives, each printed from its corresponding negative, and which are colored in the color complementary to the light-filter of their negatives and placed on top of each other.

Such a complementary positive is obtained by coating a glass plate, having a gelatine solution on the edges, with a fine collodion film serving as picture carrier, and flowing this with a chrome gelatine mixture, called *Lichtbeize* (light-etching). After this so prepared plate has been dried, it is exposed to sunlight behind one of the three negatives; for instance, the negative for red. After exposure the soluble salts are washed out in cold water, and the blue picture is developed in a color solution complementary to red—for instance, in a color bath of methylene blue; whereupon the plate is taken from the bath, dried and coated with collodion.

In the same way a second positive is produced by printing a second plate prepared as above from negative No. II, which was taken through a green light-filter. This is now developed in a color bath complementary to green; for instance, of fuchsin, and finally it is treated the same way as the blue one.

The third positive is produced in the same way. It is developed in a color bath complementary to blue; for instance, helianthin.

Photograph by PALEY, New York.

After all three positives have been produced, they are laid over each other in the following way. Cut the edges of the pink picture II, squeegee transfer paper upon the same, strip the tender collodion picture film with the paper and transfer it upon positive I (blue), which was previously coated with gelatine as a sticking substance; fit both pictures to each other; press them and strip the transfer paper. Positive No. III (yellow) is transferred in the same way upon the combination picture, and thus a good natural color-positive is obtained, which, consisting of collodion or other thin films, can be transferred easily upon paper, porcelain, glass, etc.

Translated by
HENRY DIETRICH.

A SIMPLE ENLARGING PROCESS.

By Hans Pabst.

BY the treatment of negatives with diluted fluoric acid, the film will not only loosen from the glass, but it will also stretch uniformly in all directions. This is an already well-known fact, but it seems not to have met with due consideration, either by practical photographers or by amateurs, for either stripping purposes (formalin being here generally recommended) or for enlarging purposes. The application of fluoric acid is a very good method for the direct enlargement of negatives in a cheap and rapid way, and in many cases it is to be preferred to the processes ordinarily in use. The successful results of many experiments are proof of my assertions. The principal condition is a very densely developed negative, rich in contrasts, because it has to stand stretching. Intensified negatives are not so suitable, the hardening of the film by intensification interfering considerably with the stretching capacity. The developer is also of some influence. Negatives developed in pyro are not suitable, and stretch very little in the covered parts. Hydrochinon might be the best developing medium. The negative is made to swell in water (not too cold) and is then laid into a dish of corresponding size, in whose bottom the larger glass plate, intended for the transfer, has already been placed. Diluted fluoric acid (7 to 8 per cent. of that which is generally found in market), with an addition of 5 per cent. of glycerine, is now poured upon the plate. This glycerine addition accelerates not only the loosening (stripping), but acts also well on the stretching, which is also influenced favorably by a higher temperature. But its most important action is to preserve the necessary flexibility of the stretched film, and thus prevent a tearing while drying. As soon as the film begins to loosen under the influence of the fluoric acid, this is poured off, and pure, tempered water is poured into the dish to about one-half of its depth. The film will now float off. The plate, which until now had been its carrier, is carefully drawn from underneath, and, by lifting the plate intended for the transfer, the floating film, by careful manipulation, is brought in contact with the same. The film, with the entire length of its broader side, is lapped uniformly over the edges of the glass. This serves to give the film the necessary support, as the plate has to be put into a pretty vertical position for drying, as otherwise an uneven and spotty negative would be obtained. At a certain state during drying, the film shows a peculiar behavior. It can be partially stretched and drawn close together and still retains the given position. In this way it is not only possible to correct contortions and irregularities, but they may be produced if desired.

The stretching capacity of the negative depends upon the style of dry plate as well as the gelatine which was used for its production. Generally it does not exceed one-third to one-half of the original size. The strength of the fluoric acid is of less consequence, but an increase of temperature has an essential effect in this direction. If the film is subjected too long to the action of the fluoric acid, it will become brittle.

To strip negatives with this process without enlarging, 20 to 30 per cent. of alcohol are added to the fluoric acid solution.

Translated by

Henry Dietrich.

A NEW TONING AGENT.

"ARISTO Single Toner" is a new toning agent giving platinum black tones on Aristo Platino paper without the use of the preliminary gold bath. "Aristo Single Toner" combines the action of the gold and platinum baths formerly used in the manipulation of Aristo Platino paper. This production means a great deal to the fraternity. In the first instance, it is a great time and money saver, eliminating entirely one bath and one washing in addition to the monetary cost of the gold bath. Its second great advantage is the certainty of result. By the double-toning process the preservation of the half tones depended, not only on the perfect working condition of the gold bath, but upon the judgment of the manipulator as to the extent that the tone should be carried in this bath. If bath and judgment were not right, the light half tones would bleach or tone out. This is entirely obviated by the "Single Toner." Everything that is in the negative is saved in the print, and the tone is uniform, from the deepest shadows to the delicate half tone. Red spots are entirely avoided, except under the most careless manipulation.

The gray-black tone secured by the double-toning process cannot be produced by the "Single Toner," but the black and olive is secured easily and uniformly, with high lights strong and brilliant.

"Aristo Single Toner" is best adapted to Aristo Platino paper that is well ripened, or in winter from ten days to two weeks old. Like all other toning agents, the best results are secured from negatives of sufficient strength to give reduction enough of silver to make a basis on which to tone.

As to the permanency of this toning agent, it is needless to go further than the reputation of the American Aristotype Company for the production of permanent photographic materials and their well-known policy of placing on the market only well-tested articles of known and unquestionable merit. "Aristo Single Toner" is now regularly on the market, and may be procured from all first-class dealers.

Amateur photographers who, in the majority, have heretofore been deprived of the artistic and permanent prints made by the professional photographer on Aristo Platino paper on account of the complicated double-toning process, which has been, up to the advent of the "Single Toner," necessary to its successful manipulation, will appreciate its advent most highly.

There is no reason why the amateur's interest should cease upon the making of the negative, as it is equally as important and interesting to produce an artistic and permanent print, showing the full value of the negative.

"Aristo Single Toner" combines in one bath the results of the gold and platinum baths heretofore employed in the manipulation of Aristo Platino paper, and brings the working of this beautiful printing-out process well within the convenience and ability of every amateur who is willing to regard a very few very simple directions.

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Photograph by THEIN, Newark, N. J.

BROMIDE PRINTS.

ONE of the most frequent reproaches leveled against bromide paper as a medium for serious work, says Mr. W. Thomas, in a recent number of *The Amateur Photographer*, is that of its want of permanence; but against the truth of this reproach there is much to be urged.

Permanence in our prints is in some measure a matter of importance, but by no means is it, in the ordinary work of amateurs, that necessity we so fondly believe. Indeed, during early student days it were more than a kindness if the results we produce and gloat over, then foist on confiding friends, were even less permanent in their character than they are, for, given but perseverance and some little amount of taste, a very few years will bring us to that stage of proficiency when we shall look back on past efforts and wonder if we really ever did such stuff, and fancied it worth the doing.

But, apart from any such consideration, there seems much mistaken conception abroad as to what a really properly prepared silver bromide print is likely to show after having been in existence a few months, or a year or two.

A by no means uncommon notion is that, because it is based upon a silver salt, therefore it necessarily is of a fleeting nature. So to an extent it may be; but after all, it is simply a question of degree, and so far as the writer's knowledge of contemporary photographic work allows of forming any judgment, there is not the least need for this distrust, or any reason why silver paper of this kind should not be used for the purpose of either picture-making or any of the other ordinary uses to which photography is put.

There is, however, one matter which needs looking well to if the resulting print, or prints, are intended to be kept for any length of time and expected to survive the time test with any degree of satisfaction, and that is perfect and thorough fixation.

It is at this stage of preparing a print of this kind that so much of the mischief arises.

The general instructions are, and rightly so, most emphatic on the necessity for thorough washing, but equal with this in importance is that of absolutely ridding the print of every trace of free silver; unless this be done all the washing in the world will be futile to avoid fading, staining, and the other troubles which inevitably follow carelessness in working.

A good bromide print may easily be produced from a suitable negative. But it may here be usefully pointed out that it is not every negative which is suitable for making good prints from by this process unless considerable dodging be employed during both exposure and development. Notwithstanding this, eminently respectable-looking results may be obtained from almost any kind of negative, but equally clear is it that to produce good prints, when using ordinary care, a special class of negatives lends itself most readily to the purpose. They should be well exposed, softly developed, present a full range of gradation, without any marked density, and be perfectly clear from veil or fog. Given negatives of such quality, there exists no reason why prints may not be produced on bromide paper quite as effective as on platinotype paper; indeed, in spite of all things said to the contrary, the fact remains that prints are made daily which, hung side by side with those done in platinotype, in no way suffer by the contrast; but they need to be well done, and from suitable negatives, if they are to successfully pass through so trying an ordeal.

To speak of the many advantages this method of printing offers would fill a whole number of *The Amateur Photographer*, and then something more might be urged in its favor; perhaps, however, its strongest claim on amateurs lies in the facility with which prints, either direct or enlarged, may be produced, entirely independent of weather, or, indeed, daylight of any kind, good, bad, or indifferent.

The factors which govern success for direct printing are few and simple. First place must be given to a suitable negative. What this is has already been indicated, as a soft, thin, and well-graded one, where the relative printing values of the high lights and deepest shadows are such that the light employed may have penetrated the former sufficiently without the latter being too much overdone, so that, given a normal exposure and the application of some developer suitable for this kind of work, the positive comes up evenly and without any lagging in half-tones, or want of modeling of the highest lighted portions.

A prolonged exposure, when using a strong illuminant, such as the incandescent gas, limelight, or that of an electric lamp, might penetrate a strong, dense negative sufficiently, but, even so, it must generally be at some sacrifice in the resulting print, in those portions where one looks equally for detail and modeling, as in the lighter parts of the print, namely, the shadows. Here we should more than likely look in vain for any of that necessary breaking up of the blacks, and find what details were represented on the negative had been buried and lost on the print.

Another matter worthy of attention in making negatives, if bromide prints are likely to be produced to any extent from them, being that the negativess may with advantage be developed by such means as shall ensure them being without stain, always remembering that they must be fully graded. So that this is certain, the question of their being what most photographers might term woefully thin, matters not; it only means a shorter exposure to a less volume of light when printing comes to be undertaken, the main thing to aim for being that the high lights are capable of penetration without difficulty, and they be sufficiently transparent that, when held up to a gas light, it, the flame, is perfectly visible behind them.

The light factor may be practically rendered constant by employing the same source of illumination under fixed conditions.

If gas be found most convenient, then let it be turned full on for each exposure, and any variation necessary through different density of negatives allowed for by bringing the printing frame close to, or putting it further away from, the light, as may be required by the character of the negative being used.

With regard to the exposure, much has been written as to light intensities, and to different tables applicable for finding the correct exposure for different distances therefrom; but for ordinary work all such tables may safely be ignored, if only the slight trouble of making one or two trial exposures is undertaken.

Until recent times the ferrous oxalate developer practically held unchallenged the position of being the one for making bromide prints with, and to-day there is no developer existing by the use of which better work may be produced; but there are several which will do, in every respect, work equal to the best ever done with oxalate, and do it in far more convenient fashion, with considerably less trouble, and that are just as certain in results.

Amidol, metol, eikonogen or rodinal will all be found to work more rapidly, give just as good color, and, what is not unimportant, either of them may be relied upon to produce either pure blacks or soft delicate grays at will, and, giving a fine deposit, there is less risk of losing detail in the denser blacks of the shadows.

Stains are rarely met with when employing either of the four above-mentioned developers, and any need for following with the acid bath, so necessary when oxalate is the agent employed, is done away with.

When the prints are intended to be toned afterwards to any of the numerous colors a bromide positive may be given by chemical means, then perhaps nothing is better than hydrochinone as a developer. With this developer a misty or warm black deposit may easily be obtained which lends itself readily to toning, but with regard to these after-operations, another article must be devoted for the purpose of dealing with them.

For using any of the above-mentioned developers in making bromide prints any of the formulas given with them by the makers may be safely employed, using them in strong solution or more dilute as may be found necessary from the class of negative or requirements of the subject.

When full-strength prints with good engraving blacks are desired, then give just sufficient exposure and a strong developer; if soft, tender grays are wanted, then a full exposure and a dilute developer; and in any case the acid fixing bath is best used to prevent any tendency to yellowness or other discoloration of the image, and, above all, be perfectly certain the fixation is thoroughly well done; next a good rapid washing, and little fear need be entertained that the resulting prints will not last quite as long as they are likely to be required.

* * *

We note that Marceau's gallery, in San Francisco, was flooded by water during a recent fire, and that his valuable collection of negatives, among which was the Morse collection purchased from the old Morse Gallery, was completely ruined. These negatives were valued at $25,000.

TONING BROMIDE PRINTS.*

By Edmund A. Robins.

THERE seems to be a great tendency at the present time to wish to modify the usual cold tones of bromide paper, and it is the purpose of this article to show a number of methods whereby this may be done ; and although the permanency cannot always be guaranteed, a few words on the methods in vogue at the present day may do good in suggesting to others the direction in which to experiment for themselves—a thing which is greatly wanted in photography ; then, perhaps, some reliable toning method for bromide paper may be discovered. The tones directly produced by development vary very slightly, and experiments I have made with every developer upon the market except the very latest ("Ortol") have produced no results, showing very little can be expected from this direction, glycin and rodinal giving slightly warmer images, but not sufficient for the purpose. The addition of various substances to the developer, as recommended in an article in the *British Journal of Photography*, September 24, 1897, also gave negative results. The first toning bath of any importance is that of hypo and alum, or sulphur toning, mentioned in a previous article of mine in the *Magic Lantern Journal*, but which I take the liberty to repeat in order to make this article more complete. This depends upon the formation of a brown silver sulphide, which after three years' trial has proved to be permanent. The brown image even resists chlorine water—one of the most powerful bleaching agents known. The bath is composed as follows, and is suitable for all classes of bromide papers :

Hyposulphate of soda	46 ounces.
Alum (common)	5 "
Water (hot)	320 "

This is heated to about 120 degrees Fahr. before immersing the bromide prints, which must have previously been through an alum bath after fixing, but need not have been washed. It gives a sepia tone, varying with the class of negative, on brown tinted bromide papers ; tones resembling brown carbon can be produced, the resemblance being so great as to deceive even experienced carbon workers. The next in order of permanence is auranium, the permanency of which greatly depends upon the care with which the manipulations are carried out. The well-washed prints are immersed in the following solution until the required tone is reached :

Potassium ferricyanide	10 grains.
Water	10 ounces.
Add glacial acetic acid	4 drams.
Uranium nitrate solution (10 per cent.)	2 "

The mixed solutions will not keep. They will keep separately, providing the ferricyanide is kept from the light, although after a time this deteriorates. After toning, the prints are washed in running water until all trace of the yellow ferricyanide is removed. Care must be taken to prevent them sticking together, and also to prevent the water from playing too long in one place, else stains are produced. Prolonged washing will remove all the toning. A very pleasant effect is produced, in suitable subjects, by immersing the washed uranium toned print in :

Ferric chloride	1 part.
Hydrochloric acid	2 parts.
Water	300 "

This changes the print to a sea-green color, and, by stopping the action at various points, brown shadows with green high lights can be produced, giving rather a pleasant effect. The prints are slightly rinsed before drying. Bromide prints may be toned a brilliant blue color by placing in the following bath, the print having been thoroughly freed from hypo:

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* *The Optical Magic Lantern Journal and Photographic Enlarger.*

Ferric oxalate	5 grains.

Dissolve in a saturated solution of oxalic acid as small a quantity as possible, then add:

Potassium ferricyanide.	5 grains.
Water to.	20 ounces.

The prints, which are of a brilliant blue color, can be cleared by immersing for a few minutes in a 2 per cent. solution of hydrochloric acid, and may be turned violet by placing in a 2 per cent. solution of ammonia (.880). By bleaching the image in the following bath:

Potassium bichromate solution (5 per cent.)	10 ounces
Hydrochloric acid	2 drams

the print bleaches to a light cream color, and it then must be washed until all the yellowness has disappeared. A solution of Schippe's salt (theo-antimoniate of soda), 15 grains to the ounce, is then poured over it. The image at once assumes a color approximating to a Bartolozzi red. The print must then be washed until all yellowness has disappeared. In this case, as the action is of an intensifying character, the print must not be developed so far as is usual. A red tone may be obtained by flooding the print with the following solution: To a 1 per cent. solution of copper sulphate is added a saturated solution of ammonium carbonate until the precipitate first formed is redissolved, then add potassium ferricyanide in the proportion of 3 grains to each ounce of solution. The prints tone to a red color in this bath, but the permanency cannot be guaranteed, as a copper sulphide is formed on the surface of the print, due to the action of the sulphuretted hydrogen always present in small quantities in the air of towns. They can be preserved under glass for a considerable time, and the permanency is improved by cleaning with a 2 per cent. solution of ammonia (.880), or a saturated solution of potassium oxalate. A variety of tones can be produced by bleaching the print with a solution of chlorine gas in water, and redeveloping with various developers in daylight—a process which was communicated to the R. P. S. by Mr. H. Senier. The above remarks apply to all gelatino-bromide papers and opals, and I hope that they will fulfill the wish given at the beginning of this article, and stimulate experimentalists to seek for an improved toning method, as the toning of bromide prints is in a very early stage of development.

ANOTHER APPLICATION OF PHOTOGRAPHY.*

By W. J. Warren.

THE evidence which was given last week in a notorious trial before the Lord Chief Justice by the leading experts on handwriting raised in my mind a recurrence of the question why photography is not used in qualifying them for the conclusions they come at, and upon which their evidence is based. According to Lord Russell, the testimony which such a witness can give is valuable to the jury in assisting them to come to a proper decision, inasmuch as it points out "things which might not strike the eye of an outside observer."

The attention of the expert is, I believe, mainly given to two points. Firstly, a comparison of the style of handwriting—the characteristic ways of forming the letters and other peculiarities—with authentic documents, written by the alleged writers and also the suspected forger, and a microscopic examination to assist this, and also to test whether the impugned writing has the appearance of being written spontaneously or is the produce of effort and an attempt to destroy the style of the actual writer and replace it by that of the person whose handwriting it is supposed to be. In this regard there are generally found strong items of evidence the one way or the other.

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* *The Amateur Photographer*, January 28, 1898.

The imitation will, in the majority of cases, show signs of hesitation, of ignorance as to the actual way the imitated signature was made, often undisguised characteristics of the forger, which in his or her endeavor to avoid hesitation and stimulate spontaneity, have been overlooked.

Some years ago I was engaged in a case in which the question of the identity of handwriting played a conspicuous part, and I called in the aid of photography to help in the tracing of the culprit and the bringing home of the crime.

Without entering into long and now best-to-be-forgotten details, the facts were shortly these. Anonymous letters and telegrams of an objectionable nature were received by a certain person, who was unable to trace their authorship. On a rough examination of these they could easily be divided into three classes. The one, evidently written by an educated person, whose handwriting had been formed on what, I believe, is called nowadays the classical style. Another, written in the neat, spider-like Italian style, which ladies of twenty years ago affected, and which those who learned to write before 1870 have not forgotten nor ever will. The third was undeniably the fist of someone whose education had stopped short at the copy-book stage, and whose subsequent occasional practice of writing had not been sufficient to allow any modification. All the three bore more or less, and especially the first two, signs of a feminine hand—I mean from the bare characteristics and not the matter itself.

A certain person was open to suspicion, and there was no difficulty in obtaining a specimen of her caligraphy. Having obtained this, certain words in it were chosen, and also exactly the same words were found in the anonymous letters separately. The first slide when put in a single lantern and projected on a white sheet, the magnification being to about 10 by 10 feet, gave a wonderful opportunity for examination and comparison, but this was increased when the two separate slides were placed in a biunial lantern and projected together so as to overlap. The differences stood out boldly, and they enabled one to easily judge whether they were variations by the same writer, or differences in characteristics between two, and I came to the conclusion that one person had written the two. These I photographed exactly the natural size, making negatives which would allow the words from one of the documents, either genuine or alleged, to be printed on half a lantern plate.

I may say in parenthesis that the negatives were developed with hydroquinone and intensified to obtain absolutely clear glass in the lines, and opacity everywhere else, and the surrounding writing, all except the words to be compared, were blocked out with opaque paint. Then three slides were made—one from the two negatives, the genuine and alleged, with the words over each other—and one of each set of words.

But when slides were made from the No. 2 set of letters there was every point of contrast that convinced me they could not have been produced, either spontaneously or with intent, by the writer of the genuine letter ; and the same conclusions followed with No. 3 set. It is unnecessary to recount here how, having once obtained a clue from the comparison of the first set and the genuine letter, the acquaintances of the writer were ransacked, their handwriting obtained by various means, tested and compared, but the final result was that, so far as the experiments went, there could be no two opinions, and that each writer was identified. It is further unnecessary to speak of the denouement than to say that the two minor offenders—the writers of Nos. 2 and 3 sets of letters—were taxed and confessed, and that sufficient positive evidence was obtained to overwhelm the instigator, the writer of No. 1 set. And I suggest the main tool in coming to this conclusion was photography, and its efficiency was fully justified by a subsequent full confession.

And I have used the same useful means in obtaining copies of documents for comparison in cases where the originals themselves could only be seen and examined

NOTES FROM GERMANY.

A New Way to Remove Fixing Soda From the Negative.—Put into a glass graduate a concentrated solution of carbonate of soda and some iodine crystals. Iodide of sodium will form, which dissolves iodine in excess. Of this concentrated solution mix 2 parts with 100 parts of water, immerse the washed negative in the same, and let the solution act for about two minutes. The negative is now washed, and will be found to be completely free from soda.

* * *

Blood-red prints are obtained if a bromide of silver print after washing and fixing is placed into the following bath:

Chloride of copper	75 grams.
Distilled water	500 cubic centimeters.

In this bath the picture disappears completely, the silver of the picture changing to chloride of silver. It is now washed thoroughly, and plunged for half a minute into a concentrated solution of yellow prussiate of potassium, washed again and put into a chloride of copper bath. In this bath it will change to a blood-red color. The washing must be thorough, to prevent unclean high-lights.

* * *

To Change a Bromide of Silver Print Into a Pen and Ink Sketch.—The bromide of silver print is drawn over with a lithographic pen and india-ink, and this is left to dry well. Afterwards it is laid into a mercury solution, in which it bleaches out within three minutes, the india-ink drawing only remaining. The following is the mercury solution to be applied:

Mercury solution	10 grams.
Alcohol	100 cubic centimeters.
Water	100 “ “

After bleaching, the print is well washed and is ready for reproduction on either stone or zinc.

* * *

To produce a good negative from a faded albumen print for reproduction purposes, the yellow tone of the print can be removed in the following manner. Prepare first the following solution:

Concentrated solution of bichloride of mercury in muriatic acid	8 cubic centimeters.
Water	1,000 “ “

After the print has changed to a purple-violet tone in this solution, put it into the following bath:

Chloride of gold potassium	1 gram.
Water	1,000 cubic centimeters.

Another method is the following. Immerse the print in a solution of:

Bromide of potassium	3 grams.
Sulphate of copper	6 “
Water	100 cubic centimeters.

After the print has bleached out thoroughly, wash and dry. After drying, expose for a short time, and develop with oxalate of iron or amidol. After development, wash, fix and dry. A little tartaric or citric acid to acidify the iron developer will be to advantage.

FAILURES IN THE NEGATIVE PROCESS.

By H. D. Farquhar.

(*Concluded.*)

WHEN the film is rotten and tears easily in the bath, it is a good indication, either that the plate was placed too soon in the bath after collodionizing, that the bath contained too much acid, or that the collodion was too old.

Improperly flowing the collodion on the plate makes a film of unequal thickness, the thickest part being at the corner where the surplus collodion is allowed to run off.

Black spots irregularly scattered over the plate are caused by dirty collodion or dirt in the mouth of the vessel from which the collodion is poured on the plate.

Comets and snake-like lines come from new and insufficiently settled collodion. To remedy these, allow to stand until the undissolved salts are taken up or precipitated. However, if necessary to use immediately, it can be filtered. Diagonal streaks in the direction of the corner of the plate where the collodion was allowed to run off are caused by not rocking the plate properly when coating.

Old cotton of an inferior quality or an old acid bath cause the film to adhere badly to the plate.

Black spots and streaks proceeding from the corner from which the plate is held are caused by dirty fingers.

Streaky spots come from bubbles forming and drying on the plate when coating.

Large, dark spots are caused by the warmth of the fingers resting on the plate. To obviate this trouble, place a piece of cardboard or blotting-paper next to the plate between it and the fingers.

Fog caused by the collodion is because it is alkaline or contains organic matter. Remedy, throw it away.

A dirty bath-dipper causes black streaks across the plate.

Pale, transparent plates lacking in sensitiveness are most often found in extremely warm weather. Remedy, cool the bath by placing in ice water.

Pin holes are caused by an excess of iodide of silver. Remedy, dilute the bath with three times its volume of water, to precipitate the iodide, filter and evaporate.

Too acid a bath or organic substances will cause insensitiveness. Neutralize with permanganate of potash, as previously described.

Horizontal streaks (straight lines) are caused by not immersing the plate steadily in the bath.

Black streaks, appearing as if caused by an oily substance, are because the plate has not been allowed to remain in the bath long enough to allow the silver solution to penetrate the film. When properly sensitized, the film should have a perfectly smooth, glassy appearance on being taken from the bath. When the film appears as if covered with dust, it is because the bath is too warm and a precipitate of iodide of silver has been thrown down. If the bath is filtered and cooled, the trouble will disappear.

The plates look thin and blue instead of a rich yellow when removed from the bath because there is not enough iodide in the bath.

Fog is caused during exposure by a strong side light, or, if when using electric lights, the lamps are placed in front of the lens, allowing the light to enter the lens. Remedy, place a hood around the lens, or change direction of lights.

Marbled spots and a dry transparent margin at the top are caused by long exposure and partial drying of the plate before development. This is most likely to occur in warm weather.

Unequal illumination causes plates of unequal intensity.

Apparent fog is caused by reflected light when copying oil paintings or drawings that have a shiny surface. To remedy, change the illumination.

Double pictures are caused by fine holes in the front board of the camera, or by shaking or moving the copy during exposure.

Want of sharpness is caused by careless focusing or by the ground-glass being not in plane with the position occupied by the negative plate.

By not flowing the developer over the plate in one even wave, black crooked lines are apt to result.

If the film repels the developer, the cause probably is that the developer contains too much alcohol with a new bath, or not enough with an old bath. Remedy, omit the alcohol from the developer, and substitute liquid glue.

A bright halo at the place where the developer has been poured on the plate is because it was poured with too much force, striking the plate at one point.

A dark margin to strong high lights is caused by an excessive precipitate of nitrate of silver where the developer accumulates. This is only noticed in half-tone negatives. By changing the direction of the flow of the developer, it may be partly overcome.

Light spots come from the developer not being flowed evenly over the plate.

Transparent and weak-looking plates, after fixing, are caused by too strong a solution of cyanide of potassium.

If the film cracks and tears from the plate when becoming dry, it is because of short exposure and long intensifying. This can be remedied by flowing the plate with a strong albumen solution while still wet.

The film is dissolved when coating with stripping collodion because the rubber solution is not thick enough. The film adheres to the plate when stripping because the glass is dirty. To strip the film in a case of this kind, soak the negative in a solution of acetic acid in the proportion of about 10 ounces of water to 1 of the acid.

In conclusion, I will say that if good chemicals are used, together with the proper care in handling and preparing the mixture, very little trouble will be experienced.

Cheap chemicals are the highest priced articles a photographer can buy, as the trouble they are sure to cause will make them cost ten times their original price before the cause of the trouble can be found and remedied.

If it is found necessary to economize, do not start with the chemicals. Reduction of expense in any other direction is far better, as it is impossible to get first-class chemicals at prices called cheap, for to be cheap they must necessarily be adulterated with foreign substances, which are bound to cause unlimited trouble.

SOCIETIES

A NEW and prosperous camera club has been formed in Mobile, Ala., with the following officers for the year 1898: Dr. W. B. Pape, President; Mrs. Charles S. Shawhan, Vice-President; Richard Hines, Jr., Secretary.

At the recent meeting of the Albany Camera Club the first of a series of instructive lectures was given by Mr. Pirie MacDonald, who took for his subject, "Special Work in Photography," treating it in a manner that showed clearly the importance of following special lines, rather than trying to cover all the ground possible in the art. As a result of Mr. MacDonald's remarks, a circle of sixteen members was formed for work on the lines suggested.

A new camera club, with a membership of seventy-five or more, has been formed in Kansas City, Mo., with the following officers: J. P. Reymond, President; F. C. Childs, Vice-President; John R. Lossen, Treasurer; Rev. Seaman, Secretary.

At the recent meeting of the Springfield Camera Club the following officers were elected for the ensuing year: President, Bion D. Wheeler; Secretary, E. L. Pease; Librarian, F. H. Huntley.

Another new club, under the title of the Norfolk Camera Club, has been formed in the city named in its title, with the following officers: President, Dr. Randall Bartlett; Vice-President, Walter Taylor, Jr.; Secretary, C. R. McKinney; Treasurer, H. M. White.

The annual meeting of the Atlantic City Photographic Society was held on February 4th, and the following officers elected: President, Herbert M. Morse; Vice-President, Ferd. Stadler, Jr.; Treasurer, L. M. Alger; Secretary, Herbert Somers.

At the annual meeting of the Y. M. C. A. Camera Club of Fitchburg, Mass., George E. Nutting was elected President; E. W. Wilbur, Vice-President; Charles F. Harding, Secretary and Treasurer.

The officers of the Oregon Camera Club for the next coming year are: President, William H. Walker; Vice-President, Frank C. Cover; Treasurer, J. W. Holmes; Secretary, Milton P. Goldsmith.

Another new camera club has been formed at Wichita, Kan., by the election of the following officers: President, T. W. Clapp; Vice-President, Dr. S. S. Noble; Secretary, W. O. Sternberg.

The Portsmouth Camera Club is another new organization formed in Portsmouth, Va,, whose President is Jesse P. Neville and whose Secretary and Treasurer is H. T. Richardson.

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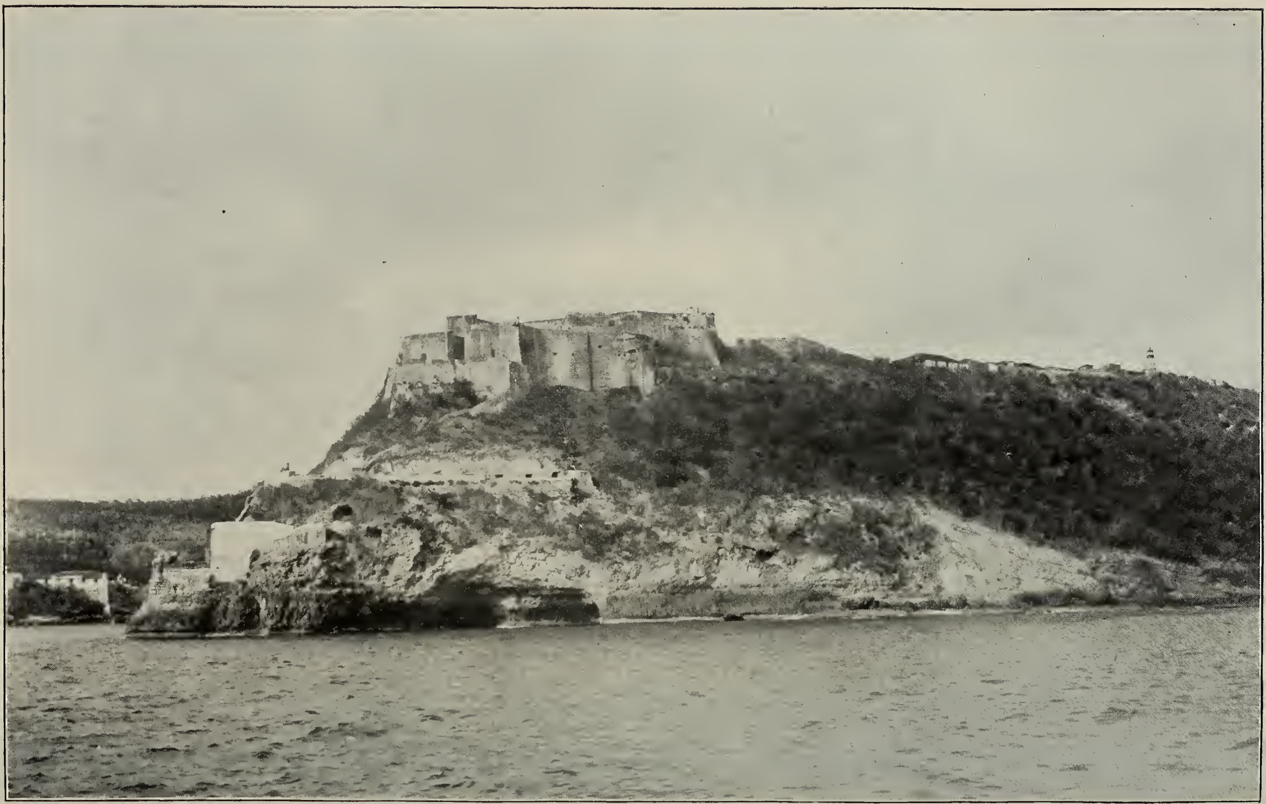

Photograph by J. F. Coonley.

MORRO CASTLE.

ANTHONY'S

Photographic Bulletin.

EDITORS:

Prof. CHARLES F. CHANDLER, Ph.D., LL.D.
W. I. SCANDLIN.

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THE VALUE OF COPYRIGHT TO PHOTOGRAPHERS.

IT is probable that no subject of equal importance to the photographer of to-day is as little understood or as much underestimated as is that of copyright. By its means, the result of one's labor, the fruit of one's intellect and study, are made permanently one's own, and the Government guarantees that they shall not be appropriated by others without compensation to the originator; and the steps necessary for this protection are not at all difficult, as many seem to suppose. The Librarian of Congress, at Washington, will gladly send, on application, blanks containing full information on all matters pertaining to it, from which it can be seen in all its bearings. Briefly stated, however, the requirements which must be complied with in the case of portraits, landscapes, or original compositions of any kind, made in this country by residents of the United States, are, first, that the person applying for a copyright must be the author, designer, or proprietor of the work to be copyrighted; and, second, that (in the case of photographs) they are made upon plates of American manufacture.

These requirements having been fulfilled, it is next necessary to send to the Librarian of Congress a printed or type-written copy (written copy will not be accepted) of the title of the subject on paper not smaller than commercial note, 5½ x 8½ inches, accompanied by the copyright fee of 50 cents for copyright entry. If a certificate of copyright is desired, the fee should be $1 instead of 50 cents. Two copies of the subject should, if possible, accompany this application, and should be mounted on card as large, at least, as a cabinet print. Where it is important to copyright the title, however, before the print is ready, the prints may follow the application at a later date; but they must,

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in any event, be filed before any prints are published from the negative. It is, therefore, highly important that prints for this purpose should be secured at once, in any case where it is proposed to copyright the subject, for once prints are in circulation without the protection of the copyright imprint, which should appear on every copy of the print issued after application has been made, the copyright will not hold. This imprint may appear on the print itself or its mount, and must read, "Copyright, 18.. (year); by.... (name)."

Record of copyright is made on compliance with the foregoing requirements without investigation ; but in cases where issue is taken, the applicant must be able to state that the requirements have been fully met, and the photograph must embrace an original design or conception, such as lighting, pose, subject, arrangement, etc. Changes in title or arrangement necessitate a new application and treatment as a new subject throughout. While it is a fact that the person taking out a copyright must be either author, designer, or proprietor, a copyright may be assigned in writing to another by recording the assignment in the office of the Librarian of Congress within sixty days after its execution. The cost of this record is $1. As to the proprietary rights in a portrait photograph, we believe it has been held that they remain with the party photographed if the negative was made in the ordinary course of business and paid for in the customary way, but only in such a case, and that where the sitter is employed by the artist for the purpose of aiding in the composition of the picture to be produced, no such rights exist. In the foregoing we have endeavored to state as briefly and plainly as possible the salient points covering this most valuable method of preventing piracy and protecting the result of one's labor, and believe that if photographers were more frequent applicants for this protection they would be better off in many ways. It is an unfortunate fact that misrepresentations are often made to owners of photographs by those desiring to use them, which would seem to indicate that the title to a copyright was a natural result of the publication of the picture, and that it belonged, in some way, to the maker of the process plate from which it was printed, or to the publication in which it was used. This, however, is not so, and any one desiring to retain possession of his own property may readily do so, and at small cost to himself in either time or money ; and only those who have availed themselves of this protection can conceive of its value. Oftentimes the revenue resulting from the sale of a single subject will more than pay the ordinary costs of copyright for a whole season ; and in these days, when the art of illustration is brought into such general use, it behooves one to be on the alert for such possibilities as this. Efforts are now being made in different directions to help the photographer in this matter, and we believe the photographer will rise to the occasion, as he has so often done in other things, and help himself, by becoming thoroughly informed in the first place, and after that it will be but a short time before he will be a regular patron of the Librarian of Congress in his own behalf, and to his own material advantage.

Items of Interest

A BRILLIANT innovation in the application of moving photography has recently been achieved by Monsieur Flammarion, the well-known astronomer of Paris, who on a recent occasion took at regular intervals during the night from two to three thousand negatives on a continuous film, obtaining in this way a series of negatives representing sunset, the appearance of the stars, milky way, moon rise and moon motion amid the other constellations, and the entire procession of the stars and planets in their apparent journey from east to west, closing with dawn and sunrise. These views reproduced upon the screen must have given a wonderfully vivid impression of the movements in space.

Another and perhaps still more wonderful illusion was shown by the same gentleman to the members of the French Astronomical Society at a recent meeting, in which the appearance of the earth, as we imagine it to be when seen from the moon, was shown to the audience. In the making of this experiment Monsieur Flammarion provided himself with a large globe representing the earth, on which were shown with great exactness the various seas and countries, the two poles and the several geographical divisions. By means of a clockwork movement this globe was caused to turn within the space of two minutes, which time was coincident with the time required for the exposure of a film, and the object of which coincidental exposure was to obtain in the short space of two minutes an exact representation of what occurs in the universe during an interval of twenty-four hours. This arrangement having been perfected, the globe was placed against a background studded with stars and highly illuminated by a very intense concentrated light, in the same way that the earth is illuminated by the sun. Movement of the globe and of the mechanism working the cinematograph were begun simultaneously, and in that manner a perfect record of the diurnal movement was obtained in the short space of two minutes.

* * *

ONE of our English contemporaries (*Photography*), in a recent note on the profusion of the illustrations in American photographic magazines, calls attention to the fact that while many of the subjects are excellently selected, there is in certain directions a tendency to degrade rather than elevate the art by the use of improper and inexcusable figure subjects, not a few of which are rude and vulgar in the extreme, and quotes a paragraph from a late number of the *American Amateur Photographer* as follows: "We hear a good deal, especially at conventions, about the dignity of the profession and the necessity of doing something to raise the status of professional photographers That desirable elevation they have pretty much in their own hands; but they, or rather some of them, aided and abetted by others who should know better, are doing their best to bring it to a lower level." Proceeding, *Photography* goes on to say: "A photographer here and there may, without doing much harm to the profession or the professors, perpetrate the most unpardonable vulgarities, in the naked and semi-naked, under the mistaken belief that he is photographing the nude; but when a photograph with (to quote the words of the writer of an excellent article on the subject in Anthony's BULLETIN) a vulgar display of as much of the person as the parties responsible dare to produce is reproduced in a journal professing to be especially the organ of the profession, and which ought to be its guide in the road that leads to elevation rather than to degradation, it is time for lovers of photography to protest with no uncertain sound."

Criticism of this kind, it seems to us, should not be necessary or in order while the field from which to draw offers so many really good and truly artistic subjects as it does to-day.

* * *

REFERRING to the article on "Uncle Sam's Studio and Picture Gallery," by James Eastus Price, which appeared in the March number of the BULLETIN, the date 1859, given for the beginning of Lemercier's process, should have been 1852. The mistake was due to a clerical error.

A question has arisen regarding the Nicéphore Niepcé bitumen process, which Mr. Price places in 1827 on the authority of Chambers' Cyclopædia, but which more recent authorities, including Mr. S. R. Koehler, in his excellent little work published in connection with the catalogue and description of the print exhibition held in the Museum of Fine Arts, Boston, 1892, locates in 1824.

Mr. Price locates the Fox Talbot process in 1853 on the authority of the National Museum Report for 1888, by means of a letter written by J. W. Osborne (inventor of the Osborne lithographic process) to Professor G. Brown Goode, then Assistant Secretary of the Smithsonian Institution, while Mr. Koehler and others hold that these patents were issued in the year previous.

The price originally asked by the sculptor for the Daguerre Monument was $15,000, as stated, but the actual cost was nearer $5,000.

There is in existence an earlier photographic publication than that mentioned by Mr. Price, files of which are extremely rare, and which is unquestionably the first journal of its kind published in America, and probably in the world. It was published under the title of the *Daguerrean Journal*, and No. 1, Volume I, was issued in New York under date of November, 1850.

* * *

AT the recent convention of the Wisconsin Photographers' Association W. Wollensak, of Milwaukee, was elected President for the ensuing year; George W. Wise, of Janesville, First Vice President; A.

A. Bish, of Chippewa Falls, Second Vice-President; A. S. Ralph, of Columbus, Secretary, and W. T. Ross, of Appleton, Treasurer.

Owing, however, to defective hearing, Mr. Wollensak positively declined serving, and in his place Mr. Henry S. Klein was elected to the office of President.

Perhaps the most important business transacted by the Association was the passage of a set of resolutions protesting against the Shafroth and Hicks copyright bills now before Congress. As these bills seem to interfere with the prerogatives of the professional and amateur photographer, the passage of the resolutions protesting against their enactment marks an epoch in the history of photography, and comes well in line with the action which is now being taken by many photographers throughout the country to protect their own interests in the matter of copyright.

◆

A DECISION rendered by Judge F. H. Collyer in the Court of Common Pleas, No. 1, Pittsburg, Pa., on the 19th of February, will be of interest to the craft in general, inasmuch as this decision carries with it the ruling that the exhibition of photographs, or any copies in any manner whatsoever, against the wish and protest of the parties at interest, is illegal.

◆

Mr. WILLIAM A. EDDY, whose name in connection with kite photography is now well known in this country, has recently made application to the Secretary of the Navy for permission to test his apparatus for the purpose of photographing ships beyond the horizon line at sea. Mr. Eddy claims that the kite is much steadier at sea than on land, and that the mast of a battle ship is an ideal place from which to fly it. He believes that by the use of his apparatus, with the aid of the telephotographic lens, the action of the enemy's vessels may be discovered at a great distance below the horizon line.

◆

THE Yerkes Observatory, of Chicago, is soon to be the recipient of another instrument in the shape of a photographic telescope, with which Professor Barnard hopes to accomplish great results. This instrument will be furnished with a 10-inch aperture, the lens for which will be cast by Mantois, of Paris, and will be the gift of Miss Catharine W. Bruce, of New York City, who recently subscribed $7,000 to locate the building and its equipment. This building will be known as the Bruce Astro-Photographical Observatory.

◆

WE are informed that Mr. John Rösch, recently associated with his brother under the name of J. E. & A. J. Rösch, of St. Louis, will open a branch studio in New Rochelle, this State. The best wishes of the BULLETIN and its readers go with Mr. Rösch in his new venture.

◆

DR. HARWOOD HUNTINGTON has been appointed the official chemist of the Wool Exchange, and has moved his office into the Wool Exchange Building, 260 West Broadway, where he has a large and beautifully equipped laboratory. Associated with Dr. Huntington is Dr. William H. Warren, who has had long experience in manufacturing operations, and has been very successful in the development of new processes and finding applications for waste products.

The particular line of work in which this laboratory has done a great deal is the development of waste products, and the basis upon which work is usually done is to take any waste products and make researches on it, and, if nothing of practical utility results, to make no charge. It is believed that if this were more generally known among manufacturers of all branches of industry, they would be glad to avail themselves of the opportunity offered by this laboratory.

◆

The subjoined announcement from Mr. F. M. Somers explains itself, and has also a ring of progress in its framing. We congratulate Mr. Somers upon the outlook that is opening up to him, and predict that he will meet the success due his ambition and confidence in the new field:

"Having purchased the famous Landy Photograph Gallery, with all its valuable negatives, and, after elaborately refurnishing with artistic accessories for the production of strictly high-class art work, you are cordially invited to call and inspect the new styles of posing and lighting. Cheap work will not be considered.

"Respectfully, F. M. Somers,
"Successor to Landy.

"Sittings by appointment.
"Gallery closed on Sundays."

◆

We understand that Mr. William F. Bell, who, for several years past, has been operator for Guerin, of St. Louis, is about to open a studio of his own in Memphis, Tenn. The Bulletin wishes Mr. Bell all possible success.

◆

The Photographers' Association of Iowa will hold its next convention at Des Moines on the 17th, 18th and 19th of May. A number of new features of interest to all photographers have been added to the regular class. Full particulars can be obtained from J. R. Hall, Secretary, Monroe, Ia.

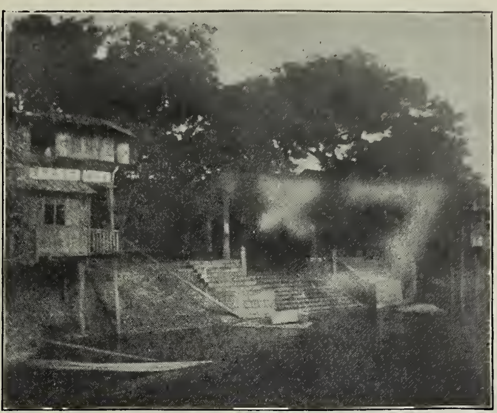
◆

The recent Prize Exhibition of the Brooklyn *Life* contained nearly three hundred examples of work by fifty-seven different exhibitors. The first prize was awarded to Mr. Henry B. Vandeveer, of Brooklyn, and the second to Mr. William T. Wintringham. The photographs entered in this competition were, on the whole, of a very high class, and have created a good deal of interest in the local press.

◆

The following letter and illustration from the United States Consulate in Foochow, China, taken in connection with the article on "Storage Light," which appeared in the November, 1897, number of the Bulletin, explains itself, and adds to the interest of the question which was then raised. The BULLETIN will be glad to chronicle the results of further experiments in this direction, believing that the question opened by Mr. Shepard is one from which further developments may be expected :

"FOOCHOW, CHINA, December 27, 1897.



"In one of your late issues I noted an article on 'Storage Light,' which was quite a new idea to me. Although for some time I had had much trouble in regard to fogging of plates, I was unable in any way to account for it. The evening after reading your article I developed the enclosed photograph, which may be of interest. The letters were written on slide in gold paint, so as to be readily seen in the darkroom. The negative, as you will see, is much under-developed, as, owing to want of time, I did not consider it a sufficiently good exposure to worry about. Hoping this may be of interest, I am Yours truly,

"W. T. GRACEY."

PROFESSOR A. H. GRIFFITH'S ADDRESS BEFORE THE PHOTOGRAPHERS' ASSOCIATION OF PENNSYLVANIA, FEBRUARY 23, 1898.

SPEAKING of the progress of photography in recent years, Professor Griffith proceeded to say: "I believe I know what the photographers of the country are leading out to. They have made the most rapid strides within the last two years of any class of art workers I know of, and I think I have some little idea of what is being done from the fact that I am constantly being brought in contact with it, both in the East and in the West. And the reason of it is that they have been willing to listen to criticism. I do not mean to say that the criticism has always been honest, because we are so apt to be biased in one way or the other by our prejudices and by our own opinions, and sometimes we speak on the spur of the moment, without sufficiently weighing the conditions, the circumstances, the ends and aims that a man is working for; and then, too, do not forget that pictures are seen through the medium of a temperament. In viewing a picture one must always try to in some way place himself in the position, in the condition of mind, if he finds it possible, of the artist who studied and planned out and possibly finished the work. Otherwise you are not in sympathy with him; you are not in sympathy with the picture. We do not feel that it is a picture that appeals to us, and yet it may have marvelous, wonderful, artistic qualities. Oftentimes in a painting the artist's mind and disposition run into a channel, and he feels that he can at that moment express that thought which is uppermost in his soul, and he does it. Now the picture may not be pleasing. It may not strike you, and yet it may have marvelous powers. In Brussels there is a gallery, which now belongs to the city, but which was formerly the studio of a famous artist. They tell you the man was crazy—that he lived as a recluse, never caring for the outside world's opinion. Surrounded by a vast world of art on every side, he lived a life within himself, painting the memories and the thoughts that thronged through his brain, and he has left them to the world to study art. Now and then, when we look at one of his pictures, we say, 'I do not care for it,' but we cannot get away from it, because the man's soul was in the picture. The vast studio is filled on every side—in every nook and corner—with thoughts that came out from his fingers' ends just at the moment. You look over in the corner and then you look again and again, and you wonder was that woman there when you came into the room? That woman leaning half way out that opening and looking at you with eyes that seem to look through you, and you walk over to it and you see that it is a flat wall—simply painted on the flat wall. A wild idea, and the mark under it 'Curiosity.' You turn from it, hardly realizing that it is only paint and color. You have only convinced yourself by going along the wall and looking up and seeing there is no opening, and that the arm of the woman does not extend out beyond the opening. There, in the corner, is a half-open door, and you see a servant girl standing, with one eye and ear listening, and you wonder, is that an illusion? I didn't see that girl before. I didn't see that door before. Yet there she stands. Filled with a curious desire to know these queer things, you wander over that way and you find another flat wall. The whole room is filled with just such vague fancies, carried out with marvelous fidelity to Nature. You look at a small opening, and inside you see a death chamber. A woman half raising the coffin lid. The look of fear and the fright on the face is one that fills you, and it clings to you for hours and days, and you cannot convince yourself that you did not look into some charnel-house and see a real thing. Back of you a great canvas, as big as this whole wall, on which is a battle between the angels of heaven and the angels of darkness—every one full of action and vigor. They seem to clash in very hand-to-hand combat, and you almost hear the noise and rattle of a battle field, and then a little picture, 'Napoleon in Hell,' viewing there before his eyes all those thousands of victims with which he strewed the battle fields of Europe. For days you can wander around through this vast studio, every nook and corner, every angle, offering to you something new. Simply the wild vagaries, as I said, of a man who was half demented, but they are so full of that soul of art that, horrid as they are, they appeal to you, and you come back again and again to view them and to convince yourself that they are not real. That man had a story to tell, and told it marvelously well. Now the photographers of this country have a story to tell, and some are telling it marvelously well, and others are groping for yet more light.

"I have told you of this studio simply because it is full of trickery. You say there is no trickery in art. I beg your pardon, but art is full of trickery, and the greatest trickster is the man who succeeds best. The Lord God Almighty put a tree down on a river bank, as we sometimes say, and put a hundred thousand leaves on it, each one perfect of his kind, every indentation and vein perfectly accentuated and brought out, and in the fall, when you see all the hills lighted up with those marvelous colors of blue and purple and red and gold, each one appears to be as if shaded by the hand of a man; but He never yet made one living soul since the world began who could do this thing, so that you do it by trickery. You catch the character of it, and then you let something of it creep out at your fingers' ends, and the people say, 'That is that old tree,' when every hour in the day the sunshine has laid new lines and shadows on it, when every breath of wind has changed its outlines, so that it is not that tree, but you have caught the character of it, the same as you know the walk of a friend through this hall, even if you do not see him; you simply know his walk. Now, it is the character that you wish to put into your pictures. You say, 'Oh, well, I am making portraits.' What are portraits but simply the ideal expressions of the thing that is before you? You take homely people, you take magnificently dressed people, you take beautiful people, and each one have their individuality and character; and, while I know the bread-and-butter element comes in—oh, I wish it did not; I wish we might always do the things we love and the things we think most of and might never have to bother about where the clothes and something to eat was coming from; but this is a material world, and you are compelled to accept the conditions and surroundings as you find them. Now, you must work for bread and butter, and ofttimes, when sitters crowd in upon you, you do the best you can, and you think they will be satisfied. But every now and then some one comes to you with a face that is lighted with a new intelligence. You see in it the very brow of Jove—you see the statesman, the philosopher—and you wish that you might express all that is in that face in your picture. I thought, as the old gentleman was giving you that welcome, that he little realized that in the years to come you men will be remembered when others will be forgotten, simply because you have transferred to metal and to paper the figures and forms of people who would be dear to people that come after. The children that are coming in here are simply the growing generation, and it is to those people you are looking for support. Each one has his own individuality, and when such a face as the one I spoke of above presents itself to you, you wish to get the best things out of it, not a simple map of a man's face, not simply the lines, the nose, the mouth, the eyes, but a little of his soul; and photography can do that better than any other means that I know of. The artist, if he be simply a mechanic, will outline a face so that it looks hard and stiff, and you say, "It looks like him." But does it look like him? When you look at a picture by Gainsborough, by Gilbert Stuart, by Rembrant Peale—when you look at a portrait by Rembrandt, by Rubens, by any one of those old masters, it is not simply color outlined in form, but the man speaks to you ; you simply see him coming out of that canvas ready to talk to you. Now, the artist, if he be a true artist, if he be filled with that genius, not cleverness—I wish people would get to know the difference between cleverness and genius. A clever man gives you an attractive picture ; it is brilliant and you are pleased with it ; but the man who is talented, the genius, gives you something of the man himself.

"The other day in court they asked me why it was necessary to have a nude figure to model a figure over, and they gave me the floor for a few moments, and I tried to explain to them that every artist, no matter how he clothed a figure, must understand the bones, the muscles, the sinews, the nerves that come in under the flesh. I was in Boston a short time ago, in a studio, where an artist was making a composition of some clothed forms, to be sent to a journal to illustrate a story, and he had a nude figure, a man of most magnificent physique, drawing from him, and he had made a perfect drawing in four different positions, and then he had another sketch in which he was clothing that figure, and it moved and seemed to suggest that, not only were there clothes there, but there was a man inside the clothes. He did not begin at the neck and end there—but there was a man inside the clothes. You will excuse me if I make a personal allusion—I don't often do it —but down by the door there is a picture of a woman walking. I believe my imagination is as vivid as that of any other man I know. I can imagine all sorts of things, but I never could imagine that that woman was walking ; her clothes do not suggest it. From her waist up, there is a woman , from her waist down, it may be stilts or sticks of wood—I don't know. It does not suggest to me one single movement, in drapery or anything of the kind. I would not know the woman was walking if she is ; she is in a very awkward position. Now, I do not mean that the photograph has no artistic excellence, but it certainly does not suggest the idea of walking ; it does not suggest a woman's figure underneath the clothes, and there is a failure. Go in to an artist's studio and you will find, if he cannot afford a model, that he has a manikin, and he takes his drapery and sweeps it all about the figure, and it gives character and tone to it, and you understand there is a figure under it. There is a statue of Lincoln in Chicago, and you never would know whether there was a man inside the clothes or not. It is a failure. It is a magnificent head of that grand old man. From here up it is Lincoln ; from here down it is his clothes put on to some stilts. Now you catch what I wish to convey to you. You must study people moving. If an artist is willing to spend days and weeks over a picture, you can certainly spend a few hours when your camera does it that quick. You must understand what you want and reach after that —the thing you desire to grasp. We never are able to go beyond our knowledge. The man who looks at a picture and says, 'That is about as good as I can do,' has gone as far as his knowledge, but when he says, 'I see another picture that is away beyond that,' he is still groping and reaching. Honest criticism is not finding fault, nor is finding fault criticism. The man who tells you a picture is bad and simply ends there, his criticism is not worth anything; but the man who tells you it is bad and tells you why it is bad, listen to him, because he has something to convey to you.

"Now, I wish to show where we find our ideals. Watch the men and the women who pass along the streets, watch them inside doors and outside doors, and you will find your mind inspired."

PRINTING AND FINISHING.

MR. HARRY FELL, in a brief address before the recent Convention of the Photographers' Association of Pennsylvania, spoke as follows:

"MR. PRESIDENT, LADIES AND GENTLEMEN:

"I see they have me on the programme to talk on Printing and Finishing. I had no intention of doing anything of that kind, but at the different conventions that I have attended, listening to the different talks and reading the different articles in the journals, I have always been impressed with the amount that has been said and written about the operating room. They talk as if the operating room was the only place in the gallery that was of any moment. Now you all know that I am connected with the other end of the business, and, while I am very much interested in the operating room, and the darkroom also, especially as the results that come out of the darkroom are what we have to deal with in the printing room—in other words, the negatives—still I cannot help noticing that there is not half enough attention given to the other end of the gallery—the printing and finishing room. We often find a gallery nicely fitted up with reception room and operating room, and when it comes to the printing room, almost any out-of-the-way place will do for that. Now I think this is a great mistake, and it is a point that lies close to my heart, and I want to talk to you about that very one point, and I want you to bear in mind that no business is stronger than the weakest point in the business; if there is any point about your business that is weak, your business is no stronger than that weakest point. Now we all recognize the importance of the operating room; of course, we recognize the importance of the darkroom, but the best negative that was ever turned out can be very badly handled in the printing room, and the poorest negative that was ever turned out can be very materially helped in the printing room. The printing room has this importance: that out of it goes the finished print that goes into the hands of the people. Now I recognize the importance of the negative, but a negative is simply a means to the end, and the end is the finished print. A negative may be as beautiful as a summer's day, but if it does not produce the end—which is the finished print, the very highest quality—it is not what you want."

SWEET, WALLACH & CO.

JUST as the BULLETIN goes to press, news comes of the terrible disaster which occurred in the well-known photographic establishment of Sweet, Wallach & Co., Chicago, on the 16th of March, by which a large amount of property was destroyed, and many lives lost. The details are full of horror, as must necessarily be the case in such a catastrophe as this, and the BULLETIN would tender its hearty sympathy to all who suffered by the fatal event, and those who are left to mourn.

HALATION AND ITS FORMATION.

By Dr. Miethe.

NOTHING is more disagreeable to the photographer, when taking a view, than the formation of a halo on his plate. A good deal has already been written about this subject, still the following explanations may not be out of place :

The reasons for the formation of halo are several. First, by so-called chemical irradiation, then by aberration of the course of the rays in the objective, and by reflexion of the reversed side of the plate.

The chemical irradiation is of no significance for ordinary photographic views. It appears as a small enlargement of luminous surfaces by scattering of the light-action in the film. If for instance, we expose sufficiently long on a star, it will appear like a disk, whose dimensions grow with increasing time of exposure. The reason for this is, undoubtedly, that the small bromide of silver particles, affected by light, consume only part of the same, while the remaining part is thrown by them upon their adjoining particles, thereby causing their reduction. The chemical irradiation is one of the principal reasons why sharp-line photographs, as used in reproduction, cannot be satisfactorily produced upon the comparatively thick film of the dry plate.

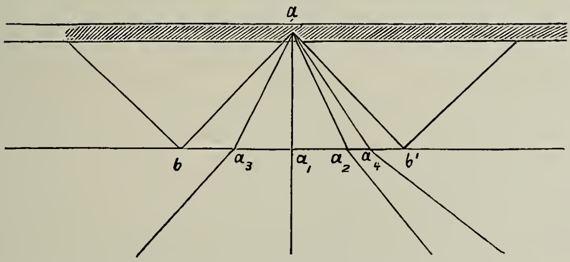
Of more importance is the formation of halo by irregular radiation in the objective. If an objective was absolutely free from all aberrations in such a way that it united again in a mathematical point the light coming from some point, only a picture point of extremely small dimensions would result from a luminous point outside of the photographic plate by correct exposure. But no photographic objective has this ideal property ; and quite a number of defective sources and circumstances are responsible for the fact that a luminous point is by no means depicted again upon the photographic plate as a point, and that all light emanating from the same is not collected again to one point, but scatters over a larger surface. But aside from the scattering of the light, which is practically of no importance, the primary and secondary spherical aberration is to be considered. As is well known we call an objective spherically correct when it can show a point in the picture space for all rays falling upon it from one point. This ideal condition is never reached. Primary spherically incorrect we call an objective, if no zone of the lens has the same uniting focus as the axis ; secondary spherically not correct, if only one zone has the same focal distance at the axis. The other zones have then other deviating focal distances, and we speak therefore of the zones of spherical aberration within the useful lens plane. These zones of the spherical aberration, which every photographic objective possesses, result in the fact that only one part of the light unites in one point, and that another part of the light is lost in the immediate neighborhood of this point.

The zones of the spherical aberration (the secondary spherical aberration) will never cause a formation of halo with most instruments, and they produce, at most, a general unsharpness of the picture, which of course may reach a disagreeable degree. The primary spherical aberration, above all the spherical over-correction of an objective, is on the contrary capable of effecting halation appearances. From this spherical over-correction, for instance, originate halos which are frequently observed in portraits on the outlines of white dresses and other light parts of the picture.

Aside from this scattering of the light by regular spherical aberration and the formation of halo conditioned thereby, irregularities in the lens may give cause to the formation of halo. Here in first line the so-called waves in the glass come into consideration. These are parts in the optical glass which differ from the surrounding by a deviating refractive power. The light which strikes these parts is therefore not generally collected in the focal point of the lens, but has a longer or shorter focal distance. It can be proven very easily that such irregularities in the glass cause a formation of halo and fog, by imitating them artificially. The appearance can be observed distinctly, for instance, if a drop of collodion is put on one part of the surface of the lens. The consequence will be at once, that the picture becomes unsharp, and that halation takes place.

But the principal source of halo formation is in the so-called reversed side reflection, and this appearance affects the halo formation to such a strikingly high degree that it is made responsible generally for this appearance. We will try now to find an explanation how this reversed side reflection takes place.

Suppose that a light-cone strikes the sensitive film, it will be brilliantly illuminated at one point, if it is in the point of the cone. The sensitive film belonging to the so-called transparent bodies, not all light, which strikes the same, will be absorbed in it, but one part passes through the film. But this passing part by no means lays in the geometrical continuance of the bunch of rays, but the light, in consequence of the transparency of the emulsion film, is further extended in all directions, so that therefore behind the illuminated point in the emulsion film every part of the space receives light from the same. These diffusely reflected and diffusely passed rays strike now, after having passed through the glass plate, its reversed side, and to some extent will leave the same again. But this is only the case for such rays, as, in consequence of their too great tendency, cannot pass out of the glass plate, but are thrown back towards the film by so-called total reflection. The foregoing figure will explain.



If *a* signifies the illuminated point in the emulsion film, and the lines issuing from the same signify the rays scattering in all directions, the rays *a a*, *a* a_2, a_3, a_4 will, for instance, leave the glass plate after corresponding refraction, while the rays *a b* and *a b′* suffer total reflection, and are therefore reflected back to the emulsion. The same fate extends to all rays situated outside of the cone *b a b′*, and produce, therefore, around the point *a* a ring of false light, which towards the outside becomes gradually fainter. The same appears, for instance, very distinctly, if we try to take a direct view of the sun. We then obtain this ring at some distance from the disk.

It can now easily be shown that the diameter of this ring depends only upon the thickness of the glass plate and its refraction exponents. But this is unimportant if in place of a luminous point many luminous points appear. Here of course one ring will be covered by another, and lead to that diffuse over-refraction and halo formation which is so disturbing in photography.

The point is now to find the necessary means and applications by which we can oppose this reversed side reflection. To avoid the same, the spreading of the emulsion upon an opaque surface would be first to come into consideration. If for instance the bromide of silver emulsion could be put upon an ebonite or lacquered metal plate, every reflection would be excluded. But this is not very well possible on account of the printing process. The next would be that between film and glass any non-actinic intermediate film could be placed, depriving the light, which enters the glass, of its actinic power. This in fact has been tried. A third way is to flow the bromide of silver emulsion so thick that a passage of the light cannot very well take place.

But as the views, in which the halo has a disturbing influence, belong only to special cases, we will have to look for other means, which will admit a suppression of the halo. Such means are also known, but are not applied practically for various reasons. It is clear, that if the rays which strike the reversed side of the plate are deprived of the opportunity of total reflection, they cannot pass again to the front surface of the glass body and into the film. Total reflection only takes place if the light passes from an optically denser medium into a thinner one, but never the reverse. If therefore we cover the glass plate with a material which has at least just such a high refraction index as glass, and if we take care that the light can penetrate into this material by bringing the latter in optical contact with the glass, and if finally this material is so constructed that the light in the same either absorbs or at least assumes a non-actinic color, the formation of halo will be removed. All propositions in this direction are therefore to provide the reversed side of the plate with an opaque or red-colored covering, which has a sufficiently high refractive power. Suitable for this purpose are collodion, lacquer and oil paint. Black cloth, paper or similar methods are not suitable, because no optical contact can be obtained. The coating put on the reversed side of the plate should be such that it will easily dissolve in the developer. The most preferable is therefore colored collodion, which can easily be removed with a tuft of cotton. A colored collodion is produced by mixing a thin collodion with a concentrated solution of a red or yellow aniline dye, which is soluble in alcohol, and adding to this from 2 to 3 per cent. of castor oil. Fuchsin is very good. The plate is placed in a wooden frame, film side down, and the collodion is poured in the same way as in the wet process, upon the glass side, taking care that it does not run over the edges. Varnishes made of shellac, and which can be put on with a brush, are also recommended.

The simplest way is the following: Dissolve from 2 to 3 grains ordinary shellac in 80 centimeters alcohol, and add to the solution a small quantity of a fuchsin solution. This is put on with a brush, and is removed before developing with a cotton tuft saturated with alcohol. Still more effective are resinous solutions, resin as a rule having a high refraction index. The resin we refer to is known in market as Aloe Alba. It is powdered in a porcelain mortar, and equal parts of alcohol and water, to cover the powder, are added, and this is left standing for several days. Afterwards, a little Nigrosin, an aniline dye of dark color, is added, and the solution is then put on the plate with a brush. It adheres very firmly, but can easily be removed as above described. Acridin-yellow is also good, and we would recommend the latter method, particularly on account of its simplicity and good effect.

Translated by

HENRY DIETRICH.

Photograph by L. F. BREHMER.

INTERVALE AND UPLAND.

PHOTO-MECHANICAL PRINTING IN CONNECTION WITH THE SURVEY OF INDIA.

By Colonel J. Waterhouse, I. S. C.

THE following extracts we select from a very interesting paper read before a recent meeting of the Royal Photographic Society of Great Britain, and sent to the Bulletin by Colonel Waterhouse, from whom we hope to hear more frequently in the future, now that he has taken up his residence in England again. We regret that the space at our disposal is not sufficient to reproduce the paper in its entirety.

Colonel Waterhouse prefaces his remarks by giving a general description of the building occupied by the photographic and lithographic office of the Survey of India Department in Calcutta, which work has been under his immediate charge for a number of years past, and of which he speaks with a full knowledge of the conditions. It will doubtless be a surprise to many to know of the magnitude on which the work is carried in this distant country :

" The new buildings form a rectangular two-storied block, with a frontage of about 200 feet, built round an inner quadrangle about 74 x 80 feet, the entrance being in the middle of the front face and flanked by turrets. The rooms on the north side of the entrance are devoted to the lithographic, type printing and zinc printing sections, while those to the south accommodate the various photographic printing sections, heliogravure, electrotyping, and stores on the ground floor, and on the first floor the administrative offices and glass-houses, with darkrooms attached, the principal glass-house being on the side farthest away from the road, and protected as far as possible from vibration by being supported on several small storerooms below. The old arrangement of having the glass-house on the ground could not be carried out in the new buildings on account of the want of open space to the south and sides.

" A plentiful supply of water is laid on all over the building from tanks on the roof, filled by a force pump ; but most of the photographic rooms, in which cool water is a necessity, have each a separate cistern, which also provides a reserve. Gas is laid on to the heliogravure and photo-transfer printing rooms, and also to the officers' laboratories and darkrooms. By means of geysers, a plentiful supply of hot water can be obtained at once in the transfer-printing and heliogravure washing rooms. The windows of the darkrooms throughout the building are double, the outer ones being glazed with white glass, and the inner ones with dark-yellow glass, ground on one side. These can be further darkened, as required, by yellow or orange paper and curtains of yellow and red twill. The object has been to give ample light of a safe quality for the work in hand.

" The principal glass-house is a room about 31 x 44 feet internal measurement, with the skylight facing the south ; but instead of having merely a sloping roof, as in the old building, it has a ridge roof of about 22 feet span, or about double the width of the old one.

This is a great advantage in some ways, as giving more light at a lower angle on the plans, but the consequent exposure to the rays of a tropical sun, both for the operators and the apparatus, is very trying, though it is obviated as far as possible by shields over the cameras, moving with them. In this glass-house five cameras can be worked side by side, two large ones, for plates 32 x 24 inches, being reserved entirely for the reproduction of the maps of the Cadastral Surveys, while the other three smaller ones suffice for the miscellaneous ordinary work of the office in black and white. Behind the glass-house and connected with it by serpentine passages are two good-sized darkrooms, one of which is devoted to collodionizing and sensitizing of the plates by the wet collodion process, and the other to their development. In a third room the plates are fixed and intensified. Each operation is thus distinct. The darkrooms are efficiently ventilated by means of serpentine passages at both ends, through which a constant current of air circulates, carrying off all vapors of chemicals with it. The little light that gains admission is not found to do any harm. In order to facilitate the movement of the large dark slides between the darkrooms and the cameras, they are passed through wooden boxes let into the walls, passing out from sensitizing room into the glass-house, then back into the developing room, and finally, when empty, into the sensitizing room again.

"On the south side of the quadrangle, running east and west, is a smaller glass-house about 30 x 18 feet, with a sloping glass roof, 12 feet wide, facing the north. This is used for half-tone work on dry plates in connection with the heliogravure section. A good-sized darkroom is connected with it, and specially reserved for dry-plate work. A smaller darkroom serves on occasion for preparing wet plates or other purposes, and the entry leading into the two rooms serves as a double door between them and the glass-house, and is fitted with a washing tank for washing dry plates.

"Attached to the room occupied by the officer in charge is a commodious laboratory glazed with yellow glass and connected by double doors with the adjoining rooms and verandah. It has a good gas and water supply, and is very convenient for printing and washing and experimental work generally. Communicating with it is a comfortable darkroom, well ventilated and fitted for dry-plate work on orthochromatic and other plates.

"The four sides of the building are connected by verandahs or terraces which also accommodate the glass cleaners and zinc grainers.

"The northern side of the main building is almost entirely taken up by the large printing hall, which accommodates all the zinc-printing, type-printing, and lithographic presses and machines, besides the draughtsmen and stone or zinc correctors attached to the stone and zinc-printing sections. It is 120 feet long, 62 feet wide, and 35 feet high, and has a gallery 16 feet wide, supported on iron pillars, all round it. This gallery is occupied by the whole of the zinc-printing establishment and hand presses, the lithographic and type-printing sections and the machinery, being on the ground floor below. The lithographic draughtsmen on stone and paper occupy the space under the gallery on the north side, and enjoy a very fine diffused light coming from the large windows glazed with ground-glass which run all along that side of the room.

"Attached to the buildings are sheds for casting glue rollers, stone cleaning, and polishing; also for keeping the large stock of lithographic stones; a carpenter's shop, paper store rooms, and houses for the messengers and office servants.

"Although open to improvements and somewhat cramped for space, the buildings have, I believe, been found convenient and suitable. In any case they are a very great advance on the old state of things, and all the offices being together under one roof, the officer in charge can exercise a much closer supervision over them than was possible before."

Speaking of the *personnel* of the office, Colonel Waterhouse goes on to say:

"The office is under the sole charge of an Assistant Surveyor-General, who is graded on the lists of the officers of the Survey of India Department, and obtains departmental promotion according to his position in the department. The work is carried on by a large staff of over three hundred European and native assistants and workmen. Of these, eight are pure Europeans, most of them in charge of special sections of the work; fifteen are European and Eurasian assistants and apprentices. The remainder comprise the staff of native draughtsmen, zinc correctors and engravers, some of whom are exceedingly clever at their work; stone and zinc printers, polishers, machine men and pressmen, copper-plate printers and pressmen, compositors and type printers and pressmen, paper keepers and binders, also a native engine-driver. In the photographic sections there are native photographers, photo-engravers, glass cleaners and laborers. These native assistants and workmen have been almost entirely trained in the office. The whole of the correspondence and clerical work is carried on by a native head clerk and nine under-clerks and writers. I was exceedingly fortunate in having, with very few exceptions, an excellent staff, both of Europeans, civil and military, and of natives; and to their zeal and steady work the success of the office is almost entirely due. During my term of office many of the European assistants have been sappers of the Royal Engineers trained at Southampton or Chatham, and one could not desire better men to work with, well trained and disciplined, hard-working and thoroughly to be depended upon. Much of the success of the office is also due to the hearty support I have invariably received from the successive Surveyors-General under whose direction I have had the honor of serving, as well as from my colleagues in other branches of the office."

The various branches of work carried on in the department, a most interesting description of which is contained in the paper, but which space forces us to omit, may be comprised under the following heads: Photo-zincography, silver and blue printing, photo-etching, collotype printing, and the production of photo-typographic blocks in half-tone.

The brief summary with which Colonel Waterhouse closes his review will give a very good idea of the magnitude of this work, which is as follows :

"I have not the figures of the last annual report to refer to, but taking the five years from 1890–91 to 1894–95, it is found that the number of subjects in hand during the year varies from 6,000 to over 8,000, including 4,000 to 5,000 cadastral maps, about 1,000 departmental maps and plans, and 1,500 to 2,000 extra departmental maps and plans.

"The number of negatives and photo-transfer prints is from 5,000 to 6,500, of which between 3,000 and 4,000 are negatives and prints of the cadastral survey sheets on plates 32 x 24 inches, and the remainder on plates of various sizes, mostly about 24 x 12 inches or 18 x 15 inches for the ordinary departmental and extra departmental work.

"The number of zinc plates printed off by hand and machine is about 6,000, and of stones 600, with 800,000 to over 1,000,000 pulls. The number of silver prints is about 1,500, and the blue prints 2,500 to 3,000.

"The number of plates produced by photo-etching is about 80 annually, and of prints 50,000 to 60,000. The out-turn of photo-blocks has fallen off latterly, but in 1892–93, 80 were done. On an average 16 to 18 plates, duplicates and matrices, of hand-engraved copper plates are electrotyped during the year.

"I fear that I have scarcely succeeded in giving you a clear idea of the enormous amount of useful work that is done in these Calcutta offices, but I have already trespassed far enough on your patience, and must reserve any further account of the work for a future occasion.

"I would only add that the office is now under the charge of Mr. T. A. Pope, an enthusiastic and energetic officer, under whose management I feel sure the work will continue to flourish and improve."

PHOTOGRAPHIC CAMEOS.

THE following simple directions for the production of photographic cameos appeared in a recent number of *Trade News* from the hand of Mr. C. G. Mann, and we reproduce it in view of its simplicity, and of the fact that formulas for this kind of work are not too plentiful.

"The process is easily worked, and a little practice will enable one to become an expert. I use a 4 x 5 plate, which is sufficiently large. To make a medallion to attach to a watch chain, bracelet or brooch, proceed as follows : Pose the sitter in a strong light. Powder the hair, eyebrows and beard, if a gentleman. Have the neck bare to the shoulder, and make a profile view, using a black background, about the size of the head of the goddess on a silver half dollar. Under-expose slightly, and develop tolerably hard. When the negative is dry, paste thereon a round cut-out of thin black paper, with the opening just large enough to show the head and neck. Then take a clean glass plate of the same size as the negative, and cover it with a very thick solution of gelatine, applying it in the same manner as varnishing a negative. When dry, repeat the operation. See that the plate is coated evenly, and remember that the thicker the gelatine, the better the results will be. When the plate is dried, immerse in a sensitized solution of:

Bichromate of potash	⅓ ounce.
Stronger water ammonia	20 minims.
Water	8 ounces.

This solution must be kept in a dark place, as its keeping qualities are not good; it is advisable to mix fresh each time. The gelatine-coated plate is immersed in the above solution, in a darkroom by yellow light only, for three minutes, and allowed to dry in the dark. When dry, place in contact with the negative in a printing frame, in the same manner as you would use printing-out paper, being sure that the contact is perfect. Expose to direct sunlight for about ten minutes. The time of exposure depends, of course, altogether upon the density of the negative; an ordinary negative will require about the same timed exposure as for carbon print. After printing, place the gelatine plate in the dark in running water until the bichromate is thoroughly eliminated, then place it in a shallow tray of water, to which a few drops of glycerine have been added; allow it to remain there for fifteen minutes, when it should be removed and placed in a drying rack to allow the superfluous water to drain off. The image can now be seen standing out in relief; now place it in an empty dry-plate box of the same size as the plate, then mix some plaster of paris, not too thick, and pour in the box over the plate. When the plaster has hardened, which will be in about twenty minutes, break away the sides of the box, and remove the plate very carefully from the plaster cast. From this cast the cameo is made. Almost any metal can be used. For the first experiments, lead is the best metal to use, as it is very easily melted. One can make a few samples of this metal, but my regular orders, calling for silver or gold cameos, I usually give to my jeweler, as he, having a furnace and crucibles, can secure better and cleaner results. If a seal is wanted,* take the plaster cast, warm it somewhat, and brush the same with olive oil, being careful not to use too much oil, and make another plaster impression from it. Use this last cast the same as the former one. This process is much easier than it appears at first glance."

AN INTERESTING RELIC.

THE following extract is taken from a private letter of Professor S. F. B. Morse, of telegraphic fame, to the editor of the New York *Observer* and bears date Paris, March 9, 1839. We reproduce it from the Boston *Transcript* of March 2d, as it seems to have a distinct value in these days of research into the history of photography in its early stages.

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*In Intaglio.—Editors Anthony's Bulletin.

"You have perhaps heard of the daguerreotype, so called, from the discoverer, M. Daguerre. It is one of the most beautiful discoveries of the age. I don't know if you remember some experiments of mine in New Haven, many years ago, when I had my painting-room next to Professor Silliman's, experiments to ascertain if it were possible to fix the image of the camera obscura. I was able to produce different degrees of shade on paper dipped into a solution of nitrate of silver, by means of different degrees of light; but finding that light produced dark, and dark light, I presumed the production of a true image to be impracticable and gave up the attempt. M. Daguerre has realized in the most exquisite manner this idea.

"A few days ago I addressed a note to M.D. requesting as a stranger the favor to see his results, and inviting him in return to see my telegraph. I was politely invited to see them under these circumstances, for he had determined not to show them again until the chambers had passed definitely on the proposition for the Government to purchase the secret of the discovery and make it public. The day before yesterday, the 7th, I called on M. Daguerre, at his rooms in the Diorama, to see these admirable results.

"They are produced on a metallic surface, the principal pieces about 7 inches by 5, and they resemble aqua tint engravings, for they are in simple chiaroscuro, and not in colors. But the exquisite minuteness of the delineation cannot be conceived. No painting or engraving ever approached it. For example: In a view up the street, a distant sign would be perceived, and the eye could just discern that there were lines of letters upon it, but so minute as not to be read with the naked eye. By the assistance of a powerful lens, which magnified 50 times, applied to the delineation, every letter was clearly and distinctly legible, and so also were the minutest breaks and lines in the walls of the buildings and the pavements of the street. The effect of the lens upon the picture was in a great degree like that of the telescope in Nature.

"Objects moving are not impressed. The Boulevard, so constantly filled with a moving throng of pedestrians and carriages, was perfectly solitary, except an individual who was having his boots brushed. His feet were compelled, of course, to be stationary for some time, one being on the box of the bootblack and the other on the ground. Consequently, his boots and legs are well defined, but he is without body or head, because these were in motion.

"The impressions of interior views are Rembrandt perfected. One of M.D.'s plates is an impression of a spider. The spider was not bigger than the head of a large pin; but the image, magnified by the solar microscope to the size of the palm of the hand, having been impressed on the plate and examined through a lens, was further magnified, and showed a minuteness of organization hitherto not seen to exist. You perceive how this discovery is, therefore, about to open a new field of research in the depths of microscopic Nature. We are soon to see if the minute has discoverable limits. The naturalist is to have a new kingdom to explore, as much beyond the microscope as the microscope is beyond the naked eye.

"But I am near the end of my paper, and I have, unhappily, to give a melancholy close to my account of this ingenious discovery. M. Daguerre appointed yesterday at noon to see my telegraph. He came and passed more than an hour with me, expressing himself highly gratified at its operation. But while he was thus employed, the great building of the Diorama, with his own house, all his beautiful works, his valuable notes and papers, the labors of years of experiment, were, unknown to him, at that moment becoming the prey of the flames. His secret, indeed, is still safe with him; but the steps of his progress in the discovery and his valuable researches in science are lost to the scientific world. I learn that the Diorama was insured, but to what extent I know not. I am sure all friends of science and improvement will unite in expressing the deepest sympathy in M. Daguerre's loss, and the sincere hope that such a liberal sum will be awarded him by his Government as shall enable him, in some degree, at least, to recover from his loss."

THE MANIPULATION OF P. O. P.

By Rev. F. C. Lambert, M. A.

THE letters P. O. P. have now pretty generally become understood as applying to any print-out gelatine papers. From somewhat extended experiments I find that while each brand of paper seems to possess some characteristic points, all seem capable of yielding excellent results when handled with a little attention to details. Popular as these P. O. P.'s are among both amateurs and professionals, comparatively few workers seem to recognize certain possibilities. For example many amateurs do not seem to know that daylight is not necessary to work these papers. For if we can only obtain a very faint image, we can by development bring this image up to almost any state we wish. The paper is much more sensitive than the ordinary albumen silver paper, and consequently a very brief exposure to feeble daylight is open quite enough to give a developable image. Daylight seems to be best when it is available, but, failing that, artificial light may be used. I have not actually tried electric light, but I feel confident that it could be used. I have used magnesium ribbon, about 6 feet burnt in front of the frame set on edge, *i. e.*, the vertical plane, and held about 4 to 6 inches away from the glass will with an ordinary negative generally giving a developable image. Half an hour's exposure to incandescent gaslight will also give a workable image, so that the amateur who can only work at home in the evenings may produce prints in this way. The actual amount of printed-out image for best results can only be learned by actual experience, but it can be easily acquired in the following way. Take any ordinary landscape negative, and put behind it four strips of the paper side by side. Expose to diffused daylight for a minute or two, and examine. Carry on printing until the half-tones are only just visible, and high lights not showing, then withdraw strip 1. Continue printing until the high lights are just (and only just) visible, withdraw strip 2, go on printing until the details on the high lights are all very lightly printed; withdraw strip 3. Finally print strip 4 until the print is just a trifle darker than the final print is desired. Keep this last strip in the dark for reference. In examining the printing be very careful to avoid exposing the paper to daylight, examine the prints by feeble gaslight, the reason of this extra caution being that the action of the developer is to render visible only such parts as are so slightly acted on that, until development, they are barely visible. In fact we may say that development brings out details which cannot previously be seen. Satisfactory results may be got by using either of the developing formulas given below. The print when removed from the printing frame is guarded from light as much as possible. It may be now washed in running water for say ten minutes, or it may pass at once (without washing) to the bromide bath. This bath consists of a 10 per cent. solution of potassium bromide. The print remains in this bath not less than ten minutes, and is turned over once or twice to remove clinging air bells. The color of the print is changed towards orange. It is now washed in running or frequently changed water for not less than fifteen minutes and preferably longer. It is then developed. Either of the following formulas give good results :

A.—Hydrochinon	150 grains.
Potassium meta bisulphite	10 "
Potassium bromide	50 "
Water	20 ounces.

B.—Soda sulphite	2 ounces
Caustic soda	100 grains.
Water,	20 ounces.

To develop a plate take equal parts, and to develop a print take one part *A*, one part *B*, and 4 to 6 parts water.

Another developer :

C.—Ortol	70 grains.
Potassium meta bisulphite	35 "
Water	10 ounces.

D.—Soda carbonate	1 ounce.
Soda sulphite	1 "
Potassium bromide	10 grains.
Water	10 ounces.

To develop a plate take equal parts ; to develop a print take one part *C*, one part *D*, and add 10 to 20 parts water.

As a rule, a dilute developer is to be preferred, because it acts slower, giving one more time to judge results, acts more evenly, and gives a less colored, *i. e.*, more black image. By adapting one or other of the above-mentioned developers to the brand of paper, a very fair black can generally be obtained by development. The usual tendency is towards green. This often happens if the print is not well washed after the bromide bath, or if the developer is old and discolored. The developed print is briefly washed, and then three courses are open to us : (1) It may be fixed forthwith and regarded as finished. For trial prints, diagrams, etc., where final color is not of so much consequence as time, this method has its advantages. (2) The print may be well washed after development ; *i. e.*, half an hour in running water, at least, and then toned and fixed ; or (3), the print may be fixed, then well washed and toned. On the whole, 1 or 2 is to be preferred. But with due care a very fair color can be obtained by development without toning. Time alone will decide the question of the permanence of these colors. This method of using P. O. P.'s is well worth more attention than it has hitherto received. Further notes on reduction and intensification of these papers will be given shortly ; *i. e.*, when experiments in hand are more complete.

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All copy for May number must be in our hands not later than April 18.

PHOTOGRAPHIC MANIPULATION IN RADIOGRAPHY.

Communicated by F. C. Lambert, M. A.

THIS was the title of an able paper to the Royal Photographic Society, contributed by Mr. A. D. Isenthal. He dealt with the subject in an eminently practical way, and gave several valuable practical points. His experience went to show that the X-ray action on a photographic film was due to what may be termed fluorescence set up in the substance of the film, and not, as was once thought, due to fluorescence in the glass—although at times fluorescence of the supporting glass plate may, and probably does, contribute something. The chief action seemed to be on the gelatine film, as no action seemed obtainable with a collodion film or daguerreotype plate. Moreover, different brands of gelatine give markedly different results. A thickly coated plate gives better results than a thin film. By coating celluloid on both sides, a kind of double negative (*i.e.*, two negatives on one support) can be obtained. Celluloid has the advantage over glass as a support in several ways. Not only is it less liable to accident by fracture, but it can be bent round a limb, thus giving better definition; can be printed either way round, thus obviating reversal as to right and left. Celluloid does not obstruct the rays like glass. Well-marked results can be obtained with a gelatine film supported on ferrotype plate; but in this case one has to copy through the camera. Speaking generally, those plates which were most rapid in ordinary use were more sensitively responsive to the X ray, although the quickest plates were not always the best to use. Orthochromatic plates presented little if any advantage over ordinary ones, nor was the incorporation of fluorescent substances in the film any advantage.

Photograph by A. J. Gifford.

Exposure however could be somewhat shortened by placing a fluorescent screen in contact with the film, so that the rays passed through the fluorescent screen before reaching the photographic film. If two screens be used, the film might be sandwiched between the two (specially contrived dark slides were shown). For best results, the development process often occupied a long time—three hours. Rodinal or hydrochinon were very suitable for this kind of work. Where intensification was needful, the copper bromide method could be recommended. The percentage of failures was disappointingly high, as yet, and the causes of them were often most puzzling. The rays had great penetrative power, being able to affect as many as a hundred films piled one on the other.

A PHOTOGRAPHIC SALON WITH A PURPOSE.—FIRST ANNUAL EXHIBITION OF THE PITTSBURG AMATEUR PHOTOGRAPHERS' SOCIETY.

By Julius Moritzen.

IT was a bold move that prompted the Pittsburg Amateur Photographers' Society to hold an International Salon and Exhibition at the Carnegie Galleries a short time ago. Following so closely upon the splendid array of paintings, brought together through the instrumentality of those who already knew from past experiences the taste of a critical public, the ambitious spirit of the officials governing the society of lens and camera is responsible for a photographic treat that, in itself, is sufficient to stamp the event of importance in the art world. Considering that the exhibit was the first annual affair of the Pittsburg Amateur Photographers' Society, and taking into consideration the fact also that oils and colors appeal more directly to the eye than the delicate black and white effects of the photograph, it was a surprise to observe with what interest the walls of the galleries were scanned. And not only did those addicted to the camera appear in numbers. Thousands of individuals, to whom the snapshot was as a sealed mystery, thronged the magnificent structure in Schenley Park. The realization of annual displays was no longer an uncertainty. The result of the recent exhibit is a sufficient criterion for what may be expected in the future.

Nearly seven hundred specimens of photographic art had been entered in the exhibition, but of that number not all were eligible for competition of prizes. From the minute photograph that may be contained in the hollow of the hand, to the pretentious picture in life size, the selections made by the respective committees showed rare judgment.

The display had been arranged according to pictures worthy of entering the Salon, and those for the general exhibition. The Salon admitted only those photographs which were judged of the highest artistic merit, and the awards consisted of a grand prize for figure study, and a similar prize for landscape, because of the difficulty encountered by the committee in deciding between the two pictures. Clarence H. White, of Newark, O., was one of the winners for his splendid picture, "The Readers," which shows that unconscious attitude so much desired by the devotees of the art. James L. Nix, of Homer City, Pa., carried off the other salon prize for his excellent photograph, "Reflections." It is a quaint conceit, showing an evening sky reflected in the water. The picture was judged solely on its artistic merit.

The Salon awarded honorable mentions to the following: William Dinwiddie, Baltimore, Md., for "Where the Shadows Nestle"; James B. Morrison, Wayne, Pa., "Through Latticed Windows"; Henry Troth, Philadelphia, "A Glimpse of the Sea"; Miss Mathilde Weil, Philadelphia, "Our Lady of Sorrows."

In the general exhibition six certificates of equal value were awarded, and were secured by William Archibald, Newark, N. J.; F. A. Mullett, Washington, D. C.; David Rosser, Pittsburg, Pa.; F. N. Waterman, New York, N. Y.; and Miss Mathilde Weil, Philadelphia.

The prizes in the special classes, open to the members of the society only, were awarded as follows:

Class A.—Portrait and figure studies. W. S. Clow, Pittsburg, Pa. "The Gardener's Children."

Class B.—Landscapes and marines. Anson B. McVay, Pittsburg, Pa. "Harbored for the Night."

Class C.—Animal studies. F. E. Gaither, Pittsburg, Pa. "On Duty."

Class D.—Flower and fruit studies. Miss Isabella Wallace, Pittsburg, Pa. "Lilies."

Class E.—Architecture. Herman Illies, Pittsburg, Pa. "Fifth Avenue Residence."

Class F.—Set of moving figures. John M. Anderson, Pittsburg, Pa. Set of ten hand camera pictures.

Class G.—Transparencies and opals. E. E. Keller, Pittsburg, Pa. "Japanese Tea Garden, World's Fair."

Class H.—Rev. Dr. David R. Breed, Pittsburg, Pa. Set of six lantern slides.

Class I.—Dr. W. A. Kessler, Pittsburg, Pa. Set of six prints.

Class K.—W. J. Burke, Pittsburg, Pa. Set of six pictures, telling a story.

Class L.—Interiors. Frederick S. Stedman, Pittsburg, Pa. "The Book Shop."

The Society also awarded a silver cup for the most artistic picture in the entire exhibition made by an amateur member of the society. W. S. Clow, Pittsburg, Pa., was the successful winner for his "What is Home Without a Mother?" The cup will be the property of the winner until the next annual exhibition, when it will once more be entered for competition. If won three consecutive times by the same member, it will become his permanent property.

The exhibition opened on January 18th, and it was the purpose to keep it open ten days. But the unlooked-for attendance made it necessary to prolong the exhibit one week. Pictures were sent from abroad also, and Scotland came to the front with some rare photographs, containing both art and technique. The fine collection of transparencies were not the least attractive features of an exhibition which proved beyond a doubt that those who had planned and executed had not been over-sanguine as to the ultimate success of the undertaking. The officers of the society, who with the various committees are responsible for this success, are as follows: E. E. Keller, President; H. L. Christy, Vice-President; J. H. Hunter, Secretary; W. J. Hunker, Treasurer.

The Salon and Exhibition Committee consisted as follows: J. H. Hunter, C. C. Craft, W. S. Clow, S. A. Ammon, C. C. McVay, A. B. McVay, E. E. Keller. The Jury of Awards in the Salon was composed of J. W. Beatty, J. R. Woodwell and Edgar E. Seavey. In the general exhibition the Jury of Awards consisted of H. E. Longwell, E. E. Seavey and J. W. Beatty.

Realizing the importance which attaches to such exhibitions as have for their purpose the education of the public in the domain of artistic endeavor, the press of Pittsburg devoted columns upon columns to the displays. In the city where the material for decades past has been considered as of supreme importance the smoke of industry is gradually drawing apart, and with the recent art exhibitions as incentives the rays of artistic endeavors will ere long shine forth with a healthy strength that will allow the metropolis of western Pennsylvania to take its rank among the known art centers of the continent. The Pittsburg Amateur Photographers' Society can feel proud of being a part of that whole which is bound to accomplish such a state of affairs.

ENLARGING NEGATIVES IN PRACTICE.*

THOUGH this subject is a hackneyed one, there is much to say upon it that is novel, and, judging by results seen too often, there is much to learn, notwithstanding the amount of information made public by experienced men. In view of the immense number of small cameras scattered in the hands of amateurs throughout the length and breadth of the land, it is surprising how few enlarged prints are to be seen beyond the ordinary bromide picture. Now without saying or intending anything of a disparaging tone about bromide work, it is obvious that the range of effects obtainable by its means must be of a very limited character compared with the possibilities when an enlarged negative is the means of obtaining a photograph of the desired size. The once-favorite platinotype is elbowed out by the superior claims of a developed print when ease of production alone forms a governing factor in deciding what process of enlargement to adopt; and when a single print only is needed, there can be no doubt that it is difficult, if even it were desirable, to oust bromide from its coign of vantage. But when a number of prints are wanted and especially when double printing is in requisition, the ease of production is so greatly facilitated by the use of a negative that it becomes almost a necessity. Similarly for exhibition work, when we remember how many prints are usually spoiled before one is produced to satisfy a fastidious taste, is a negative desirable.

Still, as we have said, the instances are rare where negative-making is adopted for the purpose. We believe we are right in saying that the main factor in determining the disuse of these means is the difficulty of getting a good negative, and, of course it must be admitted that this art, till experience is gained, is not inconsiderable.

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* *British Journal of Photography.*

We will take it for granted that the optical and camera arrangements are familiar, and that where the difficulty lies is in the manipulatory details of the production of transparency and ultimate negative.

We will first take the transparency-making, for, once a suitable transparency is produced, the rest is plain sailing enough. And it is just here where ninety-nine out of a hundred fail. It is quite true that among the best lantern-slide transparencies ever produced the work of the amateur stands prominent; hence, it will be argued, he should be just the one to be able to make the transparency for the first stage in enlarging. But such a view is the reverse of correct. It is the very experience of lantern-slide work that stands in the way, for we must at once say that a first-class lantern slide is a most inferior negative producer. Typical negatives, and prints in all processes, and bromides are to be seen by the thousand ; but where can the would-be enlarger meet with a transparency of the right type to teach him what to work up to? We will do our best to explain. Such a transparency must have more exposure given to it than would be given to a lantern slide. It must not be "plucky"; it must not be flat. It must possess the utmost detail that is visible in the negative, all the softness possible, the lights must not be white, there must be scarcely a particle of clear glass. It should be very soft, very delicate, utterly useless for lantern work, and, above all, must not be too dense. If we wrote a page we could not advantageously add much to these simple rules, but of course, far better than any written instructions would be the examination of a few good transparencies by an expert.

With a knowledge, so far, as to what to aim at, the next question that arises is what process must be adopted to make the transparency? It may be produced by contact printing, or an enlarged transparency may be made in the camera and a contact-printed negative from that. Seeing that those who may be supposed to benefit by what we are writing are assumed to be unfamiliar with the details, it will obviously be best to begin by contact printing, as the cost of spoilt plates will thereby be reduced to a minimum.

The process to employ? We may say that to those familiar with carbon printing most beautiful results with least trouble can be obtained by its means, bearing in mind the type of transparency to aim at producing. It must be printed far deeper than for ordinary work, and, as there is then with ordinary tissue a tendency to blister, it will be a good plan to first collodionize the glass before squeegeeing the tissue upon it. Special transparency tissue is made, but it is not necessary for this particular purpose in view. If, however, carbon is unfamiliar, and a development process is decided upon, a lantern plate is excellent, but it is needful to be careful that it is not made hard. Slow and quick plates are obtainable. The latter are to be preferred, as the quality suitable is most readily judged and less experience is necessary. Where lantern plates are not at hand, an ordinary dry plate (not a quick plate) will give all the quality necessary. Professional enlargers mainly use wet collodion, but we leave that out of question for amateur work. With regard to development, it is desirable to keep the solution under, rather than over, what might be termed normal strength, and, further, to use less alkali than would be employed for every-day negative making. It would be safest to keep the pyro or other developing agent at a little below the usual strength, and the alkali at half the ordinary proportion. By these means the possibilities of getting a transparency of the right type are brought to a maximum, always bearing in mind the correct type to aim at. It may here be said that the greater the amount of enlargement, the less density is it necessary to have. Passing on now to the negative itself, there is little need to say anything, for, if the correct intermediate picture be obtained, the negative-making is carried on exactly as usual. It is only when this transparency is at fault that difficulties arise. The mere fact that they do present themselves to a fairly skillful hand is sure proof of the transparency being at fault. We should be pleased, if we could think that any remarks of ours would lead to the further pursuit of a very fascinating branch of photography, and we urge those of our readers who have hitherto devoted themselves to bromide, to give a fair trial to the process of enlarging negatives. They will never regret following our advice.

PHOTOGRAPHERS' ASSOCIATION OF PENNSYLVANIA.

THE Second Annual Convention of the Photographers' Association of Pennsylvania, held in Bellefonte, Pa., on the 23d, 24th and 25th of February, was a notable success. Enthusiasm was the order of the day and no end of good things were said and done. Before adjournment, Wilkesbarre, Pa., was selected as the next place of meeting, and the following officers elected for the ensuing year: President, E. E. Seavy, New Castle, Pa.; First Vice-President, J. B. Schreiver, Emporium, Pa.; Second Vice-President, T. B. Clark, Indiana, Pa.; Secretary, Charles L. Griffin, Scranton, Pa.; and Treasurer, W. I. Goldman, of Reading, Pa.

The Grand Prize, a bronze figure, was awarded to David Rosser, of Pittsburg.

In the Special Class, the first prize, a gold medal, was awarded to J. F. Ryder, Cleveland, O.; and the second prize, a silver medal, to J. E. Mock, Rochester, N. Y.

First and second prizes were awarded in the regular classes as follows:

Class A.—First prize, F. Nymetz, Chester, Pa.; second prize, Elias Goldensky, Philadelphia, Pa. *Class B.*—First prize, J. B. Schreiver, Emporium, Pa.; second prize, W. M. Fleckinger, Bethlehem, Pa. *Class C.*—First prize, Ginter & Cook, Lewisburg, Pa.; second prize, R. L. Dunham, Latrope, Pa. *Class D.*—First prize, Charles L. Griffin, Scranton, Pa.; second prize, H. B. Shaeffer, Bellefonte, Pa. *Class E.*—First prize, L. V. Kupper, Edinboro, Pa.; second prize, J. W. Roshon, Harrisburg, Pa. *Class F.*—First prize (only one entry in this class), J. W. Roshon, Harrisburg, Pa.

In the Amateur Class, first prize, H. B. Vandeveer, Brooklyn; second prize, C. R. Rumford, Wilmington, Del.

BLACK SURFACE FOG UPON CLEAR BROMIDE OF SILVER PAPER.—Bromide of silver paper has at times the disagreeable peculiarity of giving impure whites on development. These defects show in the picture as gray spots, and when looked at through the microscope, these spots will be found to represent a number of black lines and scratches. This injury on the surface of the coating is caused by a rubbing of the sheets against each other while in the original package. To remove this defect is not so easy. The simplest way is to rub over the surface coating of the picture. This is done by plunging a cotton tuft in alcohol and going over the picture with the same under light pressure, having particular regard to the defective places. Alcohol diluted with water will accelerate the process, but the paper loses its uniform gloss. Another way is the application of a thin cyanide of potassium solution, spread on the picture with a brush. More convenient is a very diluted reducer of red prussiate of potassium. A 10 per cent. solution of hyposulphite of soda is taken, to which are added a few drops of a concentrated solution of red prussiate of potassium. Into this solution the print is placed and the action carefully observed. After a few seconds all the spots seem to have disappeared, and the print must then be thoroughly washed. If the solution is left to act too long, it will have a reducing influence upon the picture and will injure particularly the half tones.

PROCESS WORK

"FAILURES IN THE NEGATIVE PROCESS."

MR. B. J. RICHARDSON, who has for many years been photographer for Sarony, writing of the above article, which has appeared in the two last numbers of the Bulletin from the pen of Mr. H. D. Farquhar, says: "They are well explained in the main, but I do not think we want anything to do with failures, but rather a method how to avoid them. Mr. Farquhar mentions old cotton. I have used Anthony's gun cotton five years old, and it worked well. In fact, all chemicals bought at Anthony's were as they were represented. Alcohol is poison to the developer, as it entirely destroys character. I consider the wet process a very simple one, and will endeavor to explain it in such a manner that any one may understand. Collodion iodized with 4½ grains of iodide of ammonium, 2½ grains bromide of cadmium, ether and alcohol equal parts, gun cotton (Anthony's) to suit, with a bath 40 grains strong in winter, and 50 grains in summer, well iodized; there is no need of ice in hot weather. I have made negatives for Sarony thirty years and never used any. To avoid failures, do not use alcohol in the developer. A good photographer will not permit the bath to arrive at the state where it is a necessity. The bath must be well iodized as a first requisite. Having given the strength of the bath, I will now tell how to keep it in good order. I used to have two baths of 9 gallons each, one on, the other off, and would refresh the one in use every night, if the work was light; but if I had had a heavy day, would turn it out and put on a fresh 9 gallons at 40 or 45 degrees strong. The old bath I would renovate with a solution alkaline with ammonia, and then evaporate, afterward allowing it to cool, and adding water to make it of the desired strength; filter and make acid with nitric acid, of which a considerable quantity will be needed. It will not be necessary to make a fresh bath every day, but if any work is done with the bath, it should be replenished with about half of that bath just put in order, and it will be found that its working qualities will be retained in full."

PROCESS NOTES.

Bichromate of potassium is known to be a very virulent poison, the mere contact with the same oftentimes producing a strong inflammation of the skin. It is particularly bad in hot solution, inasmuch as people who can stand the sensitizing of the pigment paper without injury will be affected during development in the warm solution. As a good protection it is recommended to wash the hands every day with alcohol, to which is added to each 100 cubic centimeters, a few drops of carbolic acid and a teaspoonful of glycerine. Bathing the hands two or three times a day in a warm, concentrated solution of boric acid and water is also good.

Directions for Photographing a Blue Print on Ross's Stipple Papers.

Make a bath of

Chrome alum	½ ounce.
Water	1 quart.

Pour into a tray large enough to accommodate your paper. Lay in the sheet perfectly flat, allow it to remain about three minutes, remove and hang up by the corners to dry. This makes the paper semi-water proof, and it may be washed long enough for ordinary photo-prints.

To sensitize, coat the paper with the following solution :

Citrate of iron and ammonia	½ ounce,
Water	4 ounces,

using cotton to apply ; then hang up in the darkroom to dry. Print under the negative until the darkest portion of the design appears, which is enough for an outline to follow in drawing.

Develop with :

Red prussiate potash	10 grains.
Water	10 ounces.

Put in a tray and float about one-half minute until you see the design develop, wash well and dry.

Albumen Sensitizing Solution.

White of two eggs (beat to a froth with an egg-beater).	
Water	8 ounces.
Ammonium bichromate	30 grains.
Water	8 ounces.

Allow to stand over night and filter before using.

Lead Intensifier for Line Negatives.

After developing and washing, place the negative in a tray containing :

Red prussiate potash	2	ounces.
Nitrate of lead	1¼	"
Water	24	"

Allow to remain until the film turns white, remove and wash five minutes in running water and blacken with :

Ammonium sulphuret	1 ounce.
Water	4 ounces.

Allow to act until it has penetrated the film, which is determined by examining back of plate ; wash and clear with :

Nitric acid	1 dram.
Water	4 ounces.

OUR REVIEWER.

WE must confess to a feeling of astonishment and admiration in reviewing the January number of the *Hansei Zasshi*, a monthly magazine, published in Tokyo, Japan, and which is No. 1, of Volume XIII of the publication. The magazine is stated to be "edited solely by Japanese, with the object of representing the true state of Japan and the Japanese to the world at large." It contains original articles on the customs, fine arts, literature and religion of the country, and notes on current topics, and is copiously illustrated with colored frontispiece and numerous half-tone blocks of excellent quality. A portion of the magazine is printed in the French language, but most of it is in English. It is an evidence of the progress of culture in Japan, which is most interesting and instructive.

"OUT-DOOR LIFE," a monthly magazine devoted to the interests of photography, cycling, shooting and field sports in general, has reached its fifth number in Volume I, and comes to us from Denver, Colo., as an applicant for favorable notice in the field of photographic literature, which is so rapidly extending today. It is a well-printed and well-edited magazine, and should have a wide field of circulation, particularly in the western country. Price, $1 per year.

"PHOTO-REVIEW," a monthly journal, for photographers by photographers, published in Deerfield, Wis., is another applicant for recognition, the last number which has reached us being for January and February, 1898, numbered 4–5. It is published in the interest of the professional and amateur, and is gotten up in excellent style. Subscription price, $1.

WE have received from Mr. C. B. Talbot, of Tacoma, Wash., several blue prints of scenery, made in the "Gold Lands" late last fall, which are very interesting at this time. From these prints one is enabled to form an idea of the country, and the natural barriers it presents to the traveler, that no mere description could convey. Mr. Talbot says of them: "They show how 'Gold Land' looked then, but with 3 feet of snow, and men dying every day, it may look differently now. Many are coming back even now, and our town is full of gold hunters on the way there. From two hundred to a thousand are leaving every day now."

The following unsolicited opinions concerning "The International Annual" for 1898 speak for themselves:

"I am well pleased with Anthony's 'International Annual' for 1898, and think it one of the finest productions ever gotten out, and think it should be in the hands of every photographer, both amateur and professional.

"The process work is the finest production I have ever seen; the formulas are the best I have ever seen published in book form for their clearness and simpleness in manipulation. To take it all in all, I think it one of the finest handbooks I have ever used."—WILLIAM L. VAN NORTE, San Diego, Texas.

"IT presents a detailed exposition of the photographic progress of the world during the last ten years, with comments on it by special expert contributors. The volume is in all ways an example of good bookmaking, while its photographic embellishments form a gallery of illustration which it is a real pleasure to study." —*Independent*, New York.

"IT is decidedly, in every respect, the best annual of the year."—JAMES REUEL SMITH.

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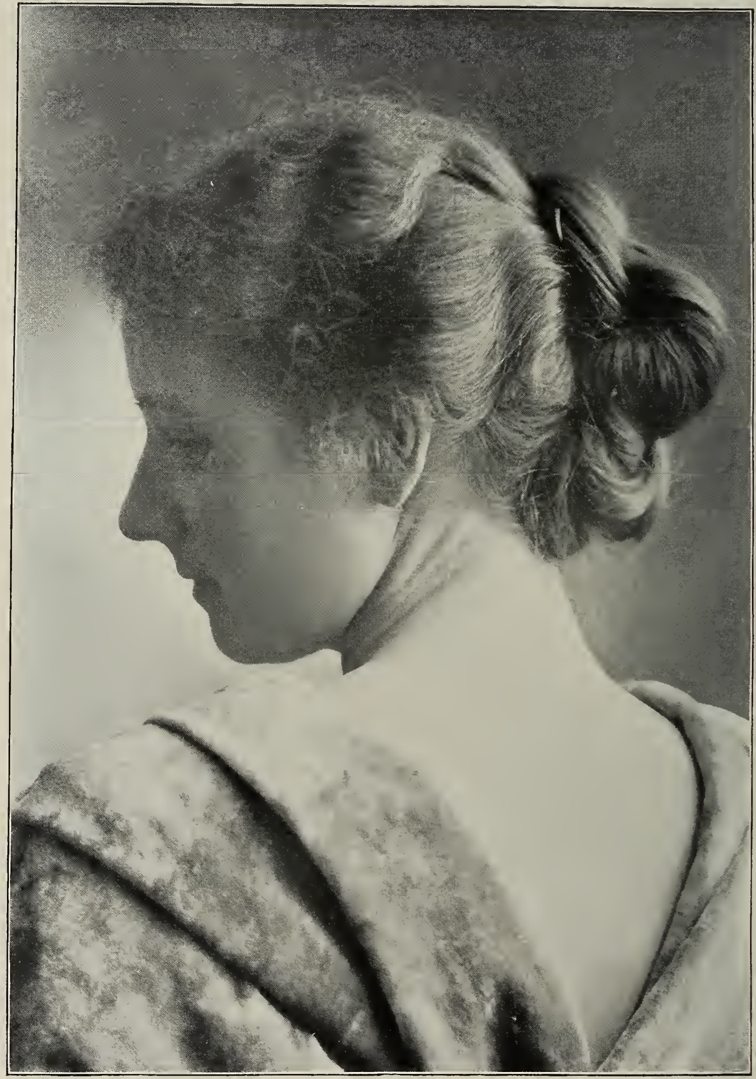

Photograph by
W. B. Cairns, Newark, N. J.

STUDIO WORK.

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.
W. I. SCANDLIN.

VOL. XXIX. MAY, 1898. NO. 5.

DR. RUSSELL'S INVESTIGATIONS.

THE extremely interesting and important investigations that have been quietly proceeding under the supervision of Dr. W. J. Russell, of England, which he brought to the attention of the Royal Photographic Society somewhat less than a year ago, and again lectured on at a recent date, ought to have the careful attention of all interested in the manipulation of dry plates. The results of Dr. Russell's research seem to show beyond a doubt that photographic plates are susceptible to the deteriorating influence of various agents beside light, and that the vapors or radiating influence thrown off by certain metals and other bodies, which have been commonly considered perfectly harmless, are hurtful in the extreme, and that their action is so vigorous that it penetrates and acts through such intervening substances as paper, sheets of gelatine, celluloid and collodion. In this regard they show a strong resemblance to the action of the Röntgen ray, and to their presence may probably be credited many of the fogged or mysteriously marked plates, the responsibility for which has heretofore been laid at the door of the patient and long-suffering manufacturer. We believe, for instance, that the several cases which during the past year have been noted in the BULLETIN under the general title of "Storage Light" are really the results of the presence of one or more of these vapor-emitting elements in the color used to paint the distinguishing mark on the dark slide of the holder, rather than being due to any quality it may be supposed to possess that might render it capable of holding in suspension a reserve supply of light rays. Perhaps the best known example of this power is to be seen in the edges of

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dry plates which have been packed in their boxes with brown cardboard or paper separators so commonly in use by some makers, even up to a very recent day, or again in the marks sometimes found on the developed negatives in parts of the plate directly opposite the metal hinges of the plate-holder. Dr. Russell's experiments have covered a very wide field, and demonstrate that printers' ink, boiled oil, turpentine, zinc, aluminium, nickel, lead, bismuth and various other substances are capable of emitting these destructive influences or radiations in a greater or less degree, and that their action goes on, even through intervening substances. It has also been proven that the action exerted is much more energetic from the bright or newly polished surface of the metal than from surfaces which have been exposed to the light and action of the atmosphere, by which they have become wholly or partially oxidized. Whatever the action is, whether chemical or electrical, it seems certain that it is not photographic, and that important results will accrue to photography from Dr. Russell's work and the further investigations which will be carried out in this direction seems equally certain.

We believe that a careful study of this matter, in view of Dr. Russell's labors, will be of practical value in every photographic darkroom in this country, and that it will be the means of locating troubles and avoiding their repetition in many cases.

THE HANDS IN PORTRAITURE.

IN view of the prominent and oftentimes unsightly positions in photographic portraits which are assumed by the hands of the sitter, the following suggestions, given by Mr. Xanthus Smith, are well worth attention. Mr. Smith says in part:

"When the fingers are extended straight out and held close together, the effect is stiff, and, if they are kept straight and spread equally, the result is a sprawled, awkward look. When the hand is open, three fingers pose together better than two, and some of the fingers should be drawn up, but not all equally. A completely doubled-up hand is not good—it is like a fist; but a pose in the position of holding a pen or pencil, or when writing or drawing, is one which looks well from many points of view. A very bad arrangement of the hand is when it is held flat and the fingers doubled up to the second joint. The squareness of the form and the impression of the ends of the fingers being cut off are very unpleasant."

Naturalness and unconsciously suspended action seems to be the all-important point, and this will be most likely to result if employment of some kind is found for them, either in the holding of some object or the actual doing of some action which, of course, must have a direct and logical connection with the general pose and surroundings, and which must not be of sufficient prominence to lead from the motive of the picture itself, but rather should harmonize with and be subservient to it.

Items of Interest

ONE of the most recent scientific wonders of the age, which, if it carries out the predictions made for it by its inventor, will prove of great interest in photographic circles, is announced under the name of Telelectroscope, invented by a Galician school-master, Herr Szczepnik. The claims made for this instrument are that by its use actual scenes may be reproduced in all their varieties of color, light and shade, together with every phase of movement, and made visible hundreds of miles distant from the spot on which they are taken. This wonderful result is said to be effected by a series of mirrors, magnetic connections and prisms, all in connection with telephone wires, which, it is claimed, may be of any length. This invention will be exhibited before the Paris Exhibition of 1900, and, "unless something breaks," should be a very drawing card.

HARVARD College Observatory is to be congratulated upon the successful photograph obtained on the 21st of February by Mr. Edward S. King, showing the occultation of a star by the moon. It is claimed that this is the first time a result of this kind has been accomplished, and, if such is the case, as we believe it to be, it is an achievement of which Harvard University and the operator should feel proud.

THE Photographers' Association of Virginia, which held its annual convention during the latter part of March, was unusually successful, the exhibit of pictures being very artistic and attractive. "A good meeting" was the verdict of all who attended. The officers for the ensuing year are: President, W. E. Eustler, Danville; First Vice-President, William Freeman, Norfolk; Second Vice-President, A. W. Cole, Lynchburg; Third Vice-President, M. L. Clark, Richmond; Secretary, H. V. Limeback, Richmond; Treasurer, W. W. Foster, Richmond. It is probable that at their next meeting a consolidation will have been effected with the North Carolina Association of Photographers.

WHAT is reported to be the first successful introduction of the Röntgen-Ray photography as legal evidence in the State of New York occurred on the 18th of March before the Supreme Court at Catskill, in the case of Emily Sinay against the Athens Steamboat Company, in an action for the recovery of damages for personal injury. In a number of other States X-ray photographs have already been admitted in evidence, but this is said to be its first legal recognition in New York. A similar recognition was granted to the process in the suit of George

Steinberger against Dr. Charles B. Parker, in a Cleveland, O., court, which is also said to be the first time it has been allowed in the State of Ohio.

◆

Mr. John R. Clemons, so long and widely known in the photographic fraternity, has prepared a very interesting demonstration regarding the ending of the nineteenth and beginning of the twentieth centuries, which shows a wide study and very deep research into history. This article was published by the *Philadelphia Enquirer* of April 3d.

◆

Is it to be wondered at that public opinion regarding the wonderful advances of photography and kindred sciences should be somewhat hazy, and that the public appetite should be whetted to an unusually keen degree when we reflect that new discoveries and records of progress are reported in the daily press by people who are enthused to such an extent as to describe "stationary vibrations falling"? It is a great pity that more care and discrimination cannot be exercised in such matters.

We are a good deal surprised, also, to note in a certain camera club's official publication a suggestion made by a very prominent worker in photography to the effect that an excellent method for copying is to take an unmounted print, and, laying it face up on a piece of glass in the printing frame, place over it a slow plate, film to film, lock up, expose and develop as usual—all this with the object of producing a fine copy. How about that copy being a negative instead of a positive when finished?

We cannot be too careful in imparting instruction to the public and the very large number of amateurs, that we are educating them in the right direction and not in wrong ways.

◆

The W. H. Jackson Photograph and Publishing Company, of Denver, Colo., has been purchased and is now being operated by the Jackson-Smith Photograph Company. An announcement is made that the entire force of old employees, with one exception, has been retained, and that, with the addition of other members to the staff and the advantages of ample capital, a very high standard of work may be depended upon. The Bulletin wishes the new company all success.

◆

Announcement is made by the Pennsylvania Academy of the Fine Arts, conjointly with the Photographic Society of Philadelphia, that during the autumn of 1898 an exhibition of pictorial photography, to be known as the Philadelphia Photographic Salon, will be inaugurated. Only such pictures will be hung as may be approved by the jury of selection, composed of well-known artists and artistic photographers, whose certificate of acceptance will be the only award. The exhibition will be held in the galleries of the Academy from October 24th to November 12th, and circulars with full details will shortly be issued.

◆

An important improvement in the printing of half-tone plates is announced under the name of the Severy Impression Process, by which an instantaneous and perfect adjustment of the printing surface is automatically secured without the necessity of making ready on the press, which has always been an obstacle, in the way of time and expense. This improvement is effected by attaching to the platen or cylinder of the press a metallic fabric composed of "vertically set, slightly bent, closely placed, fine steel wires, each one of which is capable of carrying elastically the paper laid upon it on to the inked type." The results obtained from this application are said to be smooth and fine impressions, without the undue indentation of the paper following the use of soft backing. Demonstrations that have been made with this improvement are very highly spoken of, and it looks as if this might work a decided improvement in the printing of half-tone work.

* * *

At the Fifth Annual Reception and Exhibition of the New York Academy of Sciences, held April 13th and 14th, in New York City, a very large number of interesting and valuable scientific advances were shown as a record of the last year of progress. Among them, one that created a great deal of interest and favorable comment was the demonstration made with the Optigraph, a wonderfully compact and efficient little instrument, to be used before the condensing lenses of the ordinary stereopticon for the production of animated photography. This instrument stands only about 8 inches high, and may be attached to the table on which the stereopticon is placed, and the film unwound by hand with great ease and smoothness of running. The pictures projected upon the screen by means of this device were remarkably free from flicker.

Professor George E. Hale, of the Yerkes Observatory, Chicago, in a short address on the evening of the 14th, demonstrated "the function of large telescopes" in a delightful and instructive manner, and later on a series of demonstrations made by Professor Tripler, of New York City, with liquefied air, proved of great interest. It would seem from the demonstration that vast possibilities were capable of being produced through this agent.

THE REMOVAL OF PYRO STAINS *

By R. Ed. Liesegang.

Of all developers the pyrogallol developer is the most general in use. But the negatives are not pure black, but of a brownish black color, and the contrasts of the picture are considerably increased.

On account of this coloring or staining propensity many have given up the use of pyro. A developer without sulphite is specially prone to stain the fingers.

I have found that persulphate of ammonia is an excellent means to remove this stain. The persulphates possess a very fair solvent action for this brown coloring matter.

A little of the damp crystalline powder should be rubbed between the fingers and then rinsed off.

The solution of persulphate of ammonia can also be used for reducing negatives when the pyro stain makes them too dense. The still wet negative should be bathed after fixing and washing, in a 10 per cent. solution of persulphate of ammonia, and when the stain is sufficiently removed, the solution should be washed off. This clearing bath must not be allowed to act too long, or else the metallic silver of the image itself may be dissolved.

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* *The Photographic News*, March 11, 1898.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA—CONVENTION 1898.

THE following letters will tell their own story which will interest every photographer in the land, whether he be employer or employed. To attend a convention as it is now conducted is to have put into one's hands the materials for a distinct educational advance, and to attend this convention at Celoron is to reap its advantages in connection with all that natural beauty, delightful surroundings, and the hearty and hospitable welcome of the people of Jamestown can add to one's comfort and enjoyment. The BULLETIN will organize a party, as it has done in the past, and will publish full particulars regarding it in the June number. It is to be hoped that every photographer will feel an imperative demand upon him to attend this convention, and we believe that any who attend will be amply repaid. It is a beautiful place to take your wives and daughters, and they will be well cared for and entertained at any of the several hotels.

THE CHAUTAUQUA CONVENTION.

The extraordinary success, in point of attendance and general interest of the meetings of the Photographers' Association of America, held at Celoron, on Chautauqua Lake, proves conclusively that this ideal location is thoroughly appreciated. The average photographer has not, usually, the means for a summer outing which involves heavy hotel expenses, railroad fares, etc. If one attends the conventions solely for the photographic advantages, he will have the benefit of the best system of hanging exhibits the Association has ever had, the best hall for the dealer's display, the most comfortable and the most commodious place for the official meetings, and the best and the most practical instruction that has ever been given. If, in addition to the foregoing, the Association offers an "outing" that is unsurpassed, every photographer who ever gets away should avail himself of this opportunity for recreation and profit. Exhibits have ceased to be repetitions. Never have they been so instructive. The photographic renaissance which is spreading so rapidly offers the widest scope to workers of originality and good taste. The old rules of marking for technical skill have been so modified that exhibitors will receive due credit for any artistic excellence their pictures may possess. The placing of Canada in a division of its own, with a complete set of prizes, will be pleasing news to Canadian members. We call their attention also to a letter (appended hereto) from the Secretary of the United States Treasury in regard to the free entry of their exhibits. There have been some special changes in the class divisions. The Grand Prizes will not be awarded through Class "A" of the different divisions, as heretofore, but will be competed for direct. This will take many of our best workers from the "A" classes and give men of less experience additional chances for winning a prize. The Entertainment Committee are at work on some elaborate plans for recreation. The usual reduction on hotel rates and railroad fares have been secured. For those who have seen Chautauqua it needs no word of praise. To those who have not, we can only say that it must be seen to be appreciated. Apply to the Secretary for all needed information, entry blanks, prize lists, etc. Send membership dues to George W. Varney, Treasurer, 3937 Drexel Boulevard, Chicago, to whom all applications for membership should be made.

J. Will Kelmer, *President*, Hazleton, Pa.
George B. Sperry, *Secretary*, Toledo, O.

1898 Convention, July 11th to 16th.

Mr. George B. Sperry,
319 Summit Street, Toledo, O.:

Sir,—In reply to your letter of the 4th instant in regard to the proposed importation of photographs from Canada for exhibition, I have to state, that if the officers of the customs at the port of importation shall be satisfied that the Photographers' Association of America is a society or institution established for the encouragement of the arts, science or education within the meaning of paragraph 702 of the Act of July 24, 1897, free entry under bond for temporary exhibition of such photographs will be allowed.

Respectfully yours,
W. B. Howell,
Assistant Secretary.

FLARE IN LENSES OF HIGH REPUTE.

By R. Hitchcock.

A FRIEND who but lately joined the ranks of amateurs in photography has brought to my notice a peculiar optical phenomenon, which he first observed in using a certain lens. This lens is of recent construction, made with Jena glass, and from one of the best makers.

My friend declared that he had observed a secondary image in photographing a candle or an incandescent electric light, such as could only result from the phenomenon long known as "flare." The supposition that this fault could exist, to an objectionable degree, in an expensive lens from one of the best makers, seemed to me quite beyond belief.

Nevertheless the fact was verified, not only with that particular lens, but with others of the same formula. While it is true that reflections from the curved surfaces of all compound lenses, under certain conditions, tend to produce a flare spot, the reflected light is usually so much spread and diffused over the plate that its effect is not noticeable. It may be a question of individual judgment whether the flare in the particular lens in question interferes with its good qualities in practical use. My opinion is, that it is an objectionable feature. It is obviously inherent in the lenses of this particular form, and is due to the reflection between the focal length and the curvature of the surfaces.

Flare is certainly a fault to be avoided if possible, although as manifested in the lenses in question, it may easily escape observation. These lenses have been in use for a sufficient time to enable competent critics to give abundant testimony of their many excellencies. Obviously, therefore, the fault we have indicated is not in the usual work of photography of a very serious nature. It is, indeed, much more pronounced in a certain lens of another make, which has long been on the market. Flare of this kind becomes conspicuous only when there are points of conspicuous brightness in the field of view. Hence, in an ordinary day photograph it would not be noticed, but in the same scene taken at night, with street lights burning, each light might have its ghost in the image.

The discovery of this fault is due to the investigating disposition of my friend, who, as a microscopist of long experience, has acquired the habit of testing the optical qualities of objectives with critical skill. It is doubtful if most of us would think of applying the flare test to a lens of this high character. The present high development of the microscope objective is primarily due to the demand from amateurs, as distinguished from professional workers with the instrument. At a time when the skilled opticians of the world were striving to excel in "angular aperture," and "resolving power," and were, in fact, wonderfully increasing the defining powers of the microscope, the average histologist and biologist held to the old notions of "penetration" and narrow angles, and refused to adopt the new lenses which, they argued, were only good for "resolving diatoms." To-day this is all changed. The minuter histology and bacteriology of to-day is only possible because of the perfection of the microscope in the very lines demanded by the amateurs of a decade past.

The same may prove true of camera objectives, if the amateur photographer adopts the plan of testing the optical qualities of lenses according to well-known methods. There will then follow a demand for lenses which will bear the tests, quite independently of the name and repute of the makers, and this will lead to a better knowledge among the amateurs of the excellencies and imperfections of different constructions. Such knowledge would well supplant the present somewhat vague notions that prevail. The effect of this is to perpetuate the fame of certain makers, and the use of their productions to the exclusion of others which may possess equal merit at a lower price.

Whether this is true or not, it is certain that the average buyer of lenses relies upon the name and fame of the maker alone, and in no wise upon his own knowledge of their qualities and uses. The practical result is, that good makers and good work receive the recognition and reward that is their due, and at the same time the purchasers enjoy a consciousness of possessing the best in the market.

But a systematic course of testing of lenses will not only reveal the peculiarities of different constructions, but it will also lead to an appreciation of the excellencies of the best, that cannot result from reliance upon the judgment of others. It is desirable that the photographer should have sufficient knowledge and experience to select lenses upon their merits, and their adaptation to the work in hand. It will also be recognized, as it certainly is not now, that the most expensive lenses are not necessarily the best for all purposes.

THE PASSAGE OF PHOTOGRAPHIC SALTS THROUGH GELATINE FILMS.

By Rev. F. C. Lambert, M.A.

MR. A. H. HADDON, whose valuable experiment on fixing and washing prints will long be remembered, has recently given the results of a series of experiments on the passage of various photographic chemicals through a thin layer of gelatine. The importance of the subject is obvious, for it is just owing to the fact that certain substances in solution can find their way into a thin layer of gelatine that enables us to develop, fix and intensify our plates. Usually the thickness of gelatine on a plate is about $\frac{1}{850}$ inch, but may be as much as $\frac{1}{250}$ on a multiple-coated plate. When two liquids intermingled through a septum or partition it was usually referred to as dialysis, but if there was no septum, they mingled by diffusion. Different substances varied considerably in their rate of diffusion ; for example, potassium bromide acted quickly, while caramel on gelatine diffused very slowly. Hence, a plate backed with caramel and gelatine could be kept a long time in the developer without the caramel discoloring the developer. The apparatus used for his experiments consisted of a glass cylinder, about 6 inches long and $1\frac{1}{4}$ inches wide. One end was closed with a layer of gelatine supported on paper. This tube is supported by a wire contrivance in a beaker. By syphon tubes a stream of water is kept at a constant height in the beaker. A set quantity of the solution to be dialyzed is introduced into the glass tube or cylinder and placed in the beaker. Some of the salt in solution passes through the gelatine paper bottom and into the changing water in the beaker. After a set time the solution is tested as to strength, and the quantity of salt which has passed away is estimated.

The subjoined table, which must only be taken as an approximate abstract, will give one a general idea of what happens :

	Percentage.	Gelatine.	Pyro G.	Chrome Alum.
Hypo	10	38	53	32
Potassium bromide	10	56	57	56
Soda sulphite	10	73	67	66
Soda carbonate	10	37	40	30
Mercury bichloride	7	40	50	37
Pyro	2	37	28	44

In the first column is the strength of solution at starting, *i. e.*, in the case of the first four being 10 per cent., mercury bichloride was 7, and pyrogallic acid 2 per cent. For the first set of experiments a septum of plain gelatine (on paper) was used. For the second set, the septum was of gelatine exposed to the influence of oxidized pyrogallic acid, marked Pyro G., and the third column is the result of a gelatine septum containing chrome alum. The figures in the 2d, 3d and 4th columns give (approximately) the percentage of the salt which had passed away through the septum.

Suppose, for example, we had three sets of apparatus with plain gelatine, pyro gelatine and chrome alum gelatine septa. Into each the same quantity of a 10 per cent. solution of hypo is introduced, and the tap set going so that a stream of water passes through the three beakers. After twelve hours we should find that 38 per cent. of the hypo had passed away through the plain gelatine. Fifty-three per cent. had gone through the pyro-stained gelatine film, while only 32 per cent. had found its way out through the chrome alum gelatine film. Similarly with the other salts in solution. Now these figures are very curious and rather surprising, because it has been commonly held and often stated that pyro had a hardening, tanning action on gelatine. Yet in no less than four out of six salts here set down, more passes away through a pyro gelatine film than through a plain gelatine film. To show that this pyro legend had little or no foundation, the lecturer exhibited a tube into which he had some time ago introduced solid gelatine, then some dry pyro, and, finally, all but filled the tube with water, and then sealed it. The gelatine manifestly had become dissolved by the pyro solution.

The question of the staining of a gelatine film was also dealt with in the lecture and by various experienced workers in the discussion. The essence of the matter seems to be as follows : There are two kinds of stain. First. That which results from oxidate of pyro. That could be largely, if not entirely, removed. Second. That which seems intimately associated with the reduction of the silver in the gelatine. This does not seem to yield to any at present known agent. The addition of acids (citric, hydrochloric, etc.) to the washing water lightened the color of the stain, but tended to render it insoluble, while the addition of weak alkalis, while darkening the color of the stain, rendered it soluble, and therefore removable by patient working. This applied to stains from pyro, hydrochinon and eikonogen, though the latter stain is often very obstinate. The alkali may be caustic soda or potash, or even soda carbonate. Probably the stain is most readily removable from those parts where reduction by development has taken place.

In connection with the above table, it should be kept in mind that probably the soda carbonate will have the effect of dechromatizing the chrome alum gelatine septum.

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Don't fail to keep prominently before you the forthcoming convention, remembering that, in addition to the outing and recreation which it affords, a full return for all expenditures will be available to every man who goes with the idea of taking advantage of the many good things that will be set before him. Photography has progressed in the last few years with wonderful strides, the reason of which is to be found very largely in the conventions that have been held during that time. You cannot afford to miss it, if it is a possible thing to take it in.

INTENSIFICATION OF PLATINUM PRINTS.*

PLATINUM prints frequently lack sufficient strength. They appear gray in the shadows, and the production of a picture rich in contrasts, with well-closed shadow surfaces, often presents great difficulty. To strengthen platinum pictures, a chemical intensification should not be applied, because the platinum metal will not dissolve in the chemical substances in use for this purpose. A physical intensification, however, is possible. Thus, for instance, a silver gallic acid solution will have excellent effect. To intensify, a cold saturated solution of gallic acid, and a 10 per cent. nitrate of silver solution, are prepared, and these are mixed shortly before use, as follows :

Gallic acid solution	52 cubic centimeters.[1]
Nitrate of silver solution	2 " "
Water	52 " "
Glacial acetic acid	10 drops.

The well-washed platinum print is immersed in this solution and is left therein, under constant motion, until the desired strength has been obtained. If the intensifier should discolor too much, it is replaced by a fresh quantity. The precipitate of silver has a very fine grain, and the process is finished after correct intensification by rinsing and final washing with acid water. In case such an intensified picture has become a little brown in consequence of the color of the silver, it may be turned completely black by using the following platinum bath :

Potassium chloride of platinum	1 gram.
Phosphoric acid	15 grams.
Water	750 cubic centimeters.[2]

After this bath the picture is washed and dried. It is remarkable to what high degree defective and gray platinum prints may be made to gain in beautiful appearance by this treatment. In place of the gallic acid, hydrochinon may be used, as follows :

I.

Hydrochinon	2 grams.
Citric acid	20 "
Water	450 cubic centimeters.[3]

II.

Nitrate of silver	3 grams.
Water	30 cubic centimeters.[4]

To 30 centimeters of Solution I, 10 drops of Solution II are taken. The solution is left to act, until the required intensification has taken place.

Translated by

HENRY DIETRICH.

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* From *Photographische Chronik.*

[1] = 1 ounce 6 drams 39 minims.

[2] = 25 ounces 3 drams 15 minims.

[3] = 15 " 6 " 45 "

[4] = 1 " 0 " 27 "

PRINTING SOLAR ENLARGEMENTS.

THE BULLETIN has received, during the past few months, several queries or requests for information regarding the manipulation of paper for solar printing, and herewith presents an article from the *Silver Sunbeam*, which deals with the subject, perhaps, as completely as anything that can be found :

“ THE SENSITIZED PAPER.

“ The albumen paper is sensitized in the usual way and hung up to dry. As soon as all excess of silver has drained off from the lowest corner, and the sheet is no longer wet on the surface, but simply imbued and expanded with moisture, place the sheet on a large flat board, and pin down the edges all round firmly to the board, and set it aside to dry completely. While drying, the sheet contracts and becomes perfectly flat. When dry, the film may be formed just as you are accustomed to operate in this respect.

“ Be very careful that the sheet is perfectly dry before you substitute it for the focusing paper. Pin it well in place, turning the portable camera, of course, away from the sun during the operation.

“ Let on the sun and keep it in its proper direction during the whole exposure. During half the exposure the ghosts may change place, thus equalizing the light on the picture.

“ If the sensitive sheets were not dry when the sun was turned on, the picture will be nowhere sharp ; for, by contracting as it dries, the paper gradually recedes from the picture and makes the impression nowhere perfect. Frequently the drying is irregular, or the pins give way more on one side than on another ; in which case the contraction is sudden in a given direction. By this means lines, points, leaves, etc., become doubled. All this sort of trouble is very common, but it can be avoided. Let the paper be quite dry before you begin to print.

“ The toning and fixing need no instruction.

“ PRINTING BY DEVELOPMENT.

“ There are several methods of printing by development. The following is the one preferred by M. Libois :

“ Take thin Saxe paper and float it for a minute on the following salting solution :

“ Chloride of ammonium	4 drams.
“ Citric acid	4 “
“ Rain water	25 ounces.

“ The citric acid is first dissolved in 2½ ounces of water, and completely neutralized by bicarbonate of soda, 5 drams of which are required to neutralize 3 drams of the acid. The solution of citrate of soda thus formed is added to the solution of the chloride of ammonium. The solution must have a slightly acid reaction, which is attained by the addition of a few drops of citric acid in solution. A small quantity of boiled arrow-root is also mixed with this bath, which is said to improve the final tones.

“The paper is then hung up to dry, after which it is sensitized by floating it on the following bath for half a minute:

“Nitrate of silver	1 dram.
“Water	18 ounces.

“This bath is acidified with a few drops of a solution of citric acid. The first few drops produce a slight precipitate of citrate of silver, which is immediately dissolved by the succeeding drops. When this is effected the bath is sufficiently acid.

“This paper, when dry, is ready to be tacked to the focusing screen. You expose until the print assumes a lilac hue, which will be a few minutes, at most. The image, in this time, will be just visible. The paper is now taken out and immersed in the following developing bath:

“Gallic acid	6 grains.
“Acetate of lead	4 “
“Rain water	40 ounces.

“To be prepared as follows:

“Dissolve a dram of gallic acid in 4 drams of alcohol, and a dram of acetate of lead in 12½ ounces of water. Take a dram of the alcohol solution and 12½ drams of the solution of acetate; add these to 100 ounces of water, and then drop in just enough glacial acetic acid to redissolve the slight precipitate of acetate ot lead that falls.

“A number of prints may be immersed at the same time in this bath. The development requires five or six minutes in the darkroom, and is stopped the moment the prints appear perfect. Over-printing is not needed, for the fixing solution seems rather to improve the detail than to destroy it.

“Wash the prints and then immerse them in the following fixing solution:

“Water	20 ounces.
“Hyposulphite of soda	6 “

“In this bath the prints remain about four minutes; they are then washed thoroughly in a running stream of water. The color of the prints, when they leave the water, is reddish, but it assumes a beautiful deep brown on drying.

“Naturally, the print may be toned like any other silver print. In this case the print, after development, is first carefully washed, and then immersed in the ordinary gold toning solution, and afterward treated, in other respects, like any other silver print.”

OUR ILLUSTRATIONS.

OUR frontispiece illustration this month, and the beautiful little child study facing page 152, are from the studio of Mr. W. B. Cairns, of Newark, N. J., who, it will be remembered, was awarded a bronze medal in Class D at the last convention. Mr. Cairns’ work has the charm of freshness and simplicity about it that is very taking. We shall look for his exhibit at the coming convention with a great deal of interest, and presume that he will show a decided advance over his tasty exhibit of last year.

OBITUARY.

DEATH has been busy in the ranks of photographers since the last number of the BULLETIN was published, and among its victims has claimed Grover H. Loomis, of Newton, Mass., an old time photographer, and well-known contributor to photographic literature. Mr. Loomis' early life was spent in Springfield and Boston, where he was well known and justly popular. He has rendered valuable service to photography, not only with his pen, but at the sacrifice of time and money, on more than one occasion. Mr. Loomis was about seventy-five years of age.

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Dr. FERDINAND HURTER, whose name in photographic circles is so well known in connection with that of Mr. Driffield, whose combined researches in the measurement of the speed of photographic plates has brought about results of great importance in the profession, died at his home in England, in March last, and his loss will be keenly felt by the fraternity. His researches in the special line of work mentioned above will make his name a prominent one in photographic history.

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WE have to announce the death in Paris of M. H. Gauthier-Villars, the head of the well-known photographic publishing firm of that city, who has just passed away at the age of sixty-nine.

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Mr. SILAS B. BROWN, the oldest photographer of Providence, R. I., died on the 29th of March, at the age of sixty-six years. Mr. Brown had been a photographer for forty years of his life, all of which time had been spent in the City of Providence, where his death will be keenly felt.

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Mr. RUDOLPH UHLMAN, one of the oldest and best-known photographic artists in the United States, died at Hot Springs, Ark., on the 23d of March, after a short illness. Mr. Uhlman was sixty-nine years old at the time of his death, and had been a resident of St. Joseph, Mo., for forty years.

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WE learn with deep regret of the sudden death on April 8th, at Ardmore, Pa., of Mr. Charles T. Fellows. Mr. Fellows was well known as a commercial photographer of universal ability in Philadelphia, where he resided and worked for almost twenty years. He was an active helper in the photographic department of the Philadelphia Centennial, under Mr. Edward L. Wilson, who had the photographic concession at the Centennial. Later with Mr. Roberts, he formed the firm of Roberts & Fellows, photographers and dealers in views, lantern slides, etc., taking hold of Mr. Wilson's lantern and view business. About 1893 or 1894 he secured the post of photographer at the Naval Observatory at Washington, which he held until his death.

TENSION.*

THE characteristic attitude of the two branches of photographic workers—the professional and the amateur—may, at present, be said to be one of armed neutrality. Real or supposititious raids by the one or the other over the frontier line have produced what in political jargon would be termed "tension," and yet each hesitates to create actual warfare between two bodies who have so much in common, and who really should be good friends. We are not going to suggest that one is saint and the other sinner—such persons scarcely exist nowadays, but we rather believe that it is because each is a blend of the two ; in fact, is just human.

The professional—and we wish to generalize when we are speaking of him—is to-day suffering for the sins of his forefathers. Time was when he alone could take a photograph, and, as he had a complete monopoly, he chose to do what is the idea of all monopolists—give the public what he liked and not what they wanted. He created his own idea of what a photographic portrait should be, and he refused to supply any other. Its distinguishing feature was its distinct disregard for all that had ever been done in portraiture before. To him Nature works in cycles ; last year all the inhabitants of the globe might be lighted strongly from the left, the year before it might be from the right, next year they may be in one universal pose, book in hand, and so the changes have been and probably would be rung. Now, lighting the subject from the right may be distinctly successful in some cases, but when adopted without discrimination it becomes, like coffee for breakfast, lunch and dinner, distinctly monotonous. But it may be that we are told that the exigencies of the studio necessitate such a treatment, that Mrs. Brown was successfully portrayed in this manner, and, therefore, why not Mrs. Smith? The public should know nothing of studios ; they want a natural portrait—that is all.

And then the same universal treatment followed in the background. First it was *en règle* to have a Gothic baronial hall in the far distance, and the figure posed against an Italian balustrade with a strand of consumptive ivy twining round, assisted by little bright-headed nails. Then came, perhaps, a library with a practicable chair, which displayed its aptitude for being lots of other things all through the play. One year we remember snow scenes were adopted, and Nature was simulated on the negative with the aid of opaque paint and a tooth brush.

But there came some wicked amateurs who realized that other treatment was possible, that the world was not all Italian terraces, and libraries, and snowstorms, and that even if it had been, the primary idea in a portrait picture was not their depiction in sharp focus. His produced results were unstereotyped, and were original so far as photography was concerned. At first the public would not have them, not believing that they were photographs—they were so unlike the commercial article they had bought and paid for so long.

But, finally, they, or the more thinking portion of them, began to see that although they were not what they had expected, still they were pleasing, and the old conventionalities were forgotten as the new merits asserted themselves. But the professional was last of all to be convinced ; the public had no right to think ; he had done that for them up to the present, and he distinctly objected to any usurpation. Those of his brethren who took any interest in the new movement were distinctly traitors to the cause—the cause of the Italian terrace, the retouching pencil, and the universal sharp focus.

And so, with few exceptions, the matter was left in the hands of the amateur. Of course, he ran to extremes—all enthusiasts do—but he produced work which was liked and appreciated, and the public actually began to prefer it, and if they had an amateur friend who was any good whatever, they got him to take their portraits, and no longer went to the professional. And some of them who had not such friends came to him and tried to explain what they desired, and it took a good lot of counter explanations to show how evil their ideas were, and it is to be feared that more than one were not actually convinced after all, and in their wickedness refused to be converted. But the amateur with taste, and some few of the professionals who were his friends—or not his enemies—went on producing the unconventional work, and it lived in spite of the horoscopes. Then, subsequently, the demand for "fuzzy" photographs was realized to be a commercial one; a resolution was carried, and an article was written, that in future this depraved taste was to be catered for, and all portraits were to be fuzzy. This is how it stood in 1897, and heaven knows what we may expect in the near future.

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* *Photography*, March 17, 1898.

But, in the meanwhile, whilst all this little process of evolution was going on, the amateur—remember he is not an angel—was without doubt trespassing over his neighbor's frontier. At first, perhaps, it was done unconsciously; then through the persuasions of friendship when certain results were required which the local photographer did not stock, and which we preferred to be printed on paper other than ordinary silver, of which he affected ignorance or disdain, and, finally, through sheer avariciousness. It was very nice to find that a hobby could be run free of expense, and the delightful thoughts that this feeling engendered made him forgetful of his brother who had rent and wages to pay.

Retaliation followed. When the professional could get hold of the amateur, he squeezed him very hard before he let him go. Perhaps this was only a very human flesh and blood way after all. And this is emphasized to us personally by a little experience we had when we foolishly ventured into the web and asked to have two negatives slightly retouched, and which were not returned to us until we had paid an exorbitant charge. Of course, we could have accepted the challenge thrown out in some offensive letters, and have fought it out, but we happened to be visiting only in the district, and our stay was to be a short one, and this was known. It was rather galling that only the evening before we had, at considerable expense, demonstrated a new process to the local society, and one of the members of the firm was there, and we had distributed a number of prints which it had cost us some trouble to produce—one of which we believe he got—that the county was renowned for its hospitality—and, worst of all, that we had never in our life done the professional out of a penny; that in all cases where we had taken photographs for outsiders, we had been at great care to print only one proof, and then hand the negative over in its envelope with the name of the local photographer whom we suggested should print it, and a memorandum suggesting the most suitable printing process.

The whole matter is one which needs discussion. We are sure that 99 per cent. of the amateurs of to-day realize the difficulties of the professional, and would gladly assist him. They have no wish to take the bread out of his mouth, but only to see that their friends get the sort of bread they require. Their feelings towards their hobby are that it should be more popular and in its results more beautiful, and they would join in assisting to this consummation.

But the position must be realized by the parties. The fact that the public has outgrown the ideas of the past, that there was actually an order given to a professional last year for gum-bichromate prints, must be accepted. Amateurs and professionals alike must have toleration, and then the way will be paved towards peace.

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THOSE who attended the convention last year as members of the BULLETIN excursion party will remember that the party left New York about 7.30 Sunday evening, and arrived in Jamestown at 7.00 Monday morning. The party, last year, considerably more than filled a parlor car, and was a very great improvement over journeying alone. A similar arrangement will be made this year, and the BULLETIN party, it is hoped, will be a feature of the convention, and a pleasure to all who may connect themselves with it. Full particulars will be published in the next number of the BULLETIN, and meantime the editor will be pleased to answer any questions that may be asked. It is to be hoped that the number of ladies attending this year will be even larger than last.

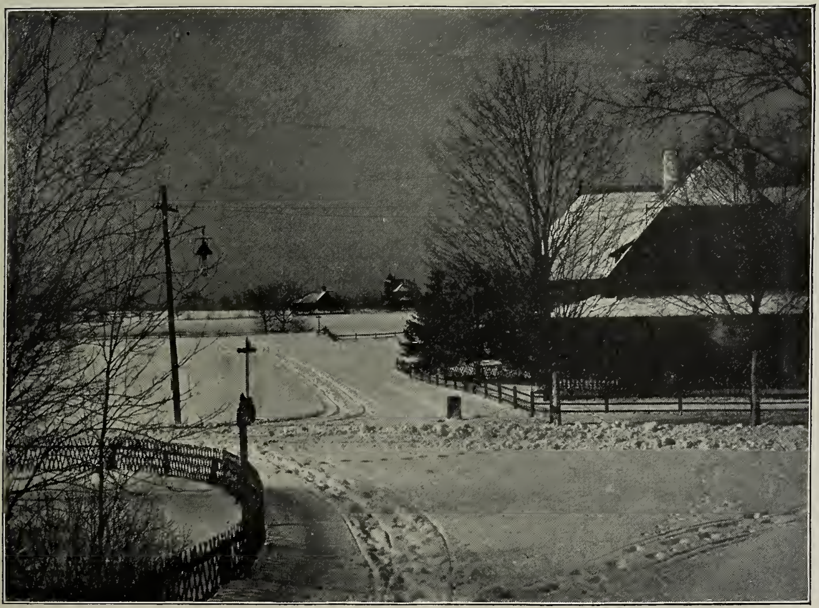
PHOTOGRAPHING BY MOONLIGHT.

By Walter Sprange.

THE choice of subjects which can be photographed satisfactorily after dark by the light of the moon seems to be extremely limited. There are so many factors to be taken into consideration, the principal one being that the length of exposure necessary to make a good strong negative makes it impossible to include moving objects in the view. A marine view taken by the light of the moon would simply show a large expanse of still water. Passing ships would not be shown, and if vessels, either at anchor or moored to a wharf, were included to relieve the foreground, the slow motion of the vessel rolling, caused by the action of the sea, even on a still night, would prevent their being shown distinctly.

On the other hand, it is quite possible that very picturesque views of lakes or rivers could be made with well-defined trees in the foreground, because, although the branches of the trees would probably be constantly moving if they were in foliage, they as constantly return to their original position, and remain stationary during a preponderance of the time of exposure. This is not the case with vessels at anchor or moored to a wharf, because of the rise and fall of the tide, and, while a river or lake can be depicted as perfectly placid, the ocean appears too flat under such circumstances

The thought occurred to the writer, after a heavy fall of snow early in February last, that a pleasing still-life picture could be made by moonlight while the snow is on the ground, and the reproduction entitled, "When the Earth is Hushed in Sleep," is the result.



"WHEN THE EARTH IS HUSHED IN SLEEP."

The camera was placed upon an upper piazza and focused before dark. At 10.30 P. M. the cap was removed, and the plate was exposed for half an hour. A non-halation plate was used, but this would not be necessary under ordinary circumstances. In this instance, having no guide as to length of exposure, and there being so much white in view, it seemed to be in better judgment to use a non-halation plate, and certainly, if an ordinary rapid-plate had been used, the negative would have been over-exposed, and the detail in the snow would not have been so well defined.

The approaching season of warm nights offers excellent opportunities for amateurs to make exposures after dark by the light of the moon, and it is possible that some very picturesque effects may result from them. We have seen what can be done by the aid of electric lights in cities, and it would be equally interesting to see what can be done purely by the light of the moon in country places.

POSING.

By Dr. Hugo Erichsen.

IT is a trite saying that lighting and posing constitute the art of professional photography. The difference between individual photo artists to-day is the difference in which they light and pose their subjects. A photographer who can control his light and pose his patrons properly has reached the topmost rung of the ladder of professional success, and is sure to make his mark at the conventions of his craft. Lighting is a tonic that demands separate treatment, and cannot be dealt with adequately in the limited compass of a magazine article, but posing, as Rudyard Kipling would say, is quite another story. It can be disposed of very briefly. It is a knack to pose properly. Not every one can do it. It takes an artistic eye to ascertain the correct pose for a given subject, and it is patent that what is suitable for one individual is totally unsuited, as a rule, to another. Many photographers pose their subjects in various ways before making an exposure, and thus generally strike the correct attitude, but a far better way to attain the desired result, whenever there is any doubt, is to take a snap-shot with a smaller camera before having recourse to a larger one. This appeals especially to amateur photogra-

phers, but even professional ones may feel inclined to resort to it in order to save expensive large plates. Some men are unable to judge what a pose will be like until they see it on a negative or in print. Study and observation will help them in time. The artistic faculty can be developed. Watch your patron after he enters the studio, and wait until he assumes a familiar attitude, one that is habitual to him. In many cases this will be just what you want. Beware of stiff postures. If he is frigid in manner, thaw him out. Engage him in conversation. Try to find out what he is interested in, and then talk about that. Most men have a hobby of some kind. When you have corralled your patron's hobby horse, help him to ride it for a while until his reserve melts and he becomes a proper subject for an artistic photograph. Some people seem to regard the photographic studio as a veritable chamber of horrors. In fact, I know a lady who would rather have a tooth drawn than have her picture taken. Such persons, of course, are hard to handle, but even they will yield to tact. As I intimated before, no hard and fast rules can be laid down for posing. Every photographer must master it himself, but much can be gained by a careful study of the leading photographic magazines of the present day and the works of the great portrait painters.

* * *

A CALL FROM TEXAS.

A CALL to the photographers of Texas, signed by a large number of the leading men, reads as follows :

"Realizing the great benefit to be derived from having a State association and holding conventions for the display and comparison of our work, we earnestly request every photographer in the State who is fond of his profession and ambitious to be a leader in it to meet at Waco and help organize a State association. Come and help. We must and will have an association for Texas. Excursion on all roads May 10, 1898."

This looks like business, and we wish them all success. It is only through efforts of this kind that best results are obtained.

NOTES FROM ENGLAND.

Mr. A. W. Clayden, M. A., at the Royal Meteorological Society.

PHOTOGRAPHS of lightning showing two or more lines of light practically parallel, have been frequently shown and often attributed to movement of the camera while two or more sparks pass along the same track. Mr. Clayden suggests another interpretation, viz., the first discharge follows the path of least resistance and forms a course of heated rarefied air. Wind blowing moves this parallel to itself, and a second discharge gives a parallel line. He had observed that a discharge would at times occupy four or five seconds; during such a time interval a moderate wind would have traveled many feet. There were numerous examples of this ribbon or multiple lightning taken by camera in a fixed position, *i. e.*, not held in the hand.

Cloud photography he suggested should be done with very slow plates, *e. g.*, photo-mechanical or lantern plates, a small stop, and full exposure given. The Black mirror or Nicol's prism before the lens was recommended.

Altitude of Clouds.—Observations were being carried on at Exeter in a somewhat novel way. Two cameras separated by a base line of 200 yards simultaneously took views of clouds which included the sun's disc, more or less centrally on the plate. The time of day was accurately noted at the instant. This gave one the means of finding (from tables) the exact position of the sun at the moment. The pairs of negatives were measured, and by trigonometric calculations, the cloud altitude could be determined. Altitudes varied for 1 to 10 or more miles.

Black Lightning.—It has from time to time been observed by those who have photographed lightning that, now and again, instead of the print yielding a bright track, it gives a dark one. In other words, photographic reversal has in some way come about. Mr. Clayden has made some careful experiments with electric discharges, and imitated this effect by attending to two points, viz., a strong white background, and giving the plate a supplemental exposure to diffused light after the electric discharge. The curious part of the matter lies here, *i. e.*, where the exposure to diffused light is given before the electric spark discharge, the reversal does not take place. This photographic conundrum waits for an answer.

A neat experiment brought the lecture to a close. A horizontal beam of strong light was reflected upwards through a tall beaker of water, and allowed to fall on a silvered globe partly covered by a tuft of cotton wool. The bright spot of light seen on the silvered ball represented the sun amid clouds. Into the water a few drops of gum mastic in alcohol were dropped, and the atmospheric blue of suspended particles given. In another vessel containing hypo in solution was added dilute HCl. Precipitate of sulphur took place and the colors of the sun were seen to change from white to yellow through orange to red, while the cotton wool clouds followed suit in color change.

F. C. Lambert.

THE GUM PRINT PROCESS.

By Florence.

THE amateur world is at present greatly interested in the gum-print, and every new publication about this process is attentively read and studied. The professional photographer has little time to devote to a study of this process; but even he should inform himself sufficiently to pass an opinion and follow its further development. A number of articles have already appeared on this subject, but in few of them have attempts been made to give a comprehensive description of the process.

The gum print, also called photo aquatint, is a process based upon the well-known fact that gelatine, glue, gum, etc., if mixed in solution with a chrome salt solution, will lose their solubility by subsequent exposure. The carbon process, after the older system, and the Artigue process, are based upon the same principle, and the gum print is very similar to the latter process.

The gum-print process is not of recent date, although it is only during the last three years that it has received the prominence that attaches to it at the present day. Poitevin reports experiments to obtain photographic pictures by means of chrome-salt solutions and gum under suitable conditions, and, later on, the process was found to be serviceable, and was applied for the reproduction of line drawings. In the production of half-tone pictures, the gum bichromate process was, however, not applied, the carbon process, with transport, based upon the same principle, furnishing very good results.

The Artigue paper, which, as carbon print without transport, made its appearance in 1894, gave good results. Artigue publishing no formula for the production of his paper, others gradually made known the different methods for the production of a paper similar to Artigue's. The most remarkable among these is the prescription of Rouillé Ladevège. From these beginnings the gum print process developed gradually, and was improved by Henneberg, Watzek & Kuhn.

The necessary paper is not obtainable in market, as in the carbon process and Artigue process, and the artist has to prepare his own paper with the required materials.

The plain paper plays a very important part, the result depending, to some extent, upon the selection and quality of the same. A well-glued paper, also drawing paper, is very suitable. Whatman's Torchon paper is very good for colored gum prints.

To find out if a paper is suitable for the gum print, the following test should be made: Take some color containing the corresponding quantity of gum, and coat with this the paper to be examined. Put it in water after it has become dry. If the color disappears entirely without leaving a small coloration of the paper, the latter is suitable; otherwise it is not.

The gum applied in this process is gum arabic in lumps, and the quality is not essential. Of this a solution of about 40 per cent. is prepared. In other formulas the gum, bichromate and color are given in one solution.

Regarding the proportion between gum and color matter, it is well to take a good quantity of gum, as pictures produced with a rich gum solution require a shorter printing time, and can be developed in cool or lukewarm water. As a gum solution will become sour with exposure to the air, and may thus show properties of another kind, fresh solutions should only be used as a matter of safety. Very thick gum solutions must be avoided, it being difficult to provide larger sizes with a uniform coating, and the result of this would be a good many defects, a thin and uniform coating being, therefore, the most important condition to fill.

The bichromate solution, serving for sensitizing, is preferably used concentrated. The proportion to the color matter is immaterial, but the tone of the same must not be changed by the bichromate of potassium. By application of suitable colors this will not take place. The quantity-proportion between color matter—gum and the bichromate solution—is regulated by experience. For the beginner it is recommended to take equal parts of gum and bichromate solution, and to add a corresponding quantity of color matter (with a 30 per cent. gum solution).

Various color matters can be applied, for instance, cake colors, powdered colors, lampblack, and even fatty colors have proven to be good. Regarding especially the several color shades, black of any kind is very suitable, also Prussian blue, ultramarine blue and indigo, while brown is worked with more difficulty, and burnt sienna or English red is recommended in its place. For the three-color print the second colors must, of course, be well selected, if harmonic effect is to be obtained.

To produce the coating a little gum and color matter is first mixed and the bichromate solution is then added, then again gum, color matter, etc., until a sufficient quantity thoroughly mixed, is made ready for coating.

Regarding the quantity of color matter taken for the mixture, Hofmeister says that this depends entirely upon the nature of the picture, the deepest shadows alone should serve as a rule. The stronger they are wanted, the more color matter has to be applied, while for less heavy shadows a smaller quantity is taken. But, what we have said about the gum addition should not be overlooked here; that is, printing and development have to be handled correspondingly with the character of the mixture. Henneberg gives the following proportions for a sheet 50 x 60 centimeters : Gum solution (40 per cent.), 6 to 8 cubic centimeters ; bichromate of potassium solution (concentrated), 15 to 25 cubic centimeters ; color matter, 1½ to 2 grams. Maskell and Demachy give the following proportions : Gum solution (30 to 35 per cent), 3½ cubic centimeters ; bichromate of potassium solution (concentrated), 3½ cubic centimeters ; ordinary red ochre, 2½ grams. This mixture requires a careful coating to produce a uniform surface. and the coating should not be so thick as to prevent the paper from being seen through the same, particularly if the printing has to be done from the coated side, which, of course, is not always necessary.

The coating is done with suitable brushes, one of them being used for the spreading of the mixture, the other to equalize it. It must be done rapidly to obtain a uniform thin coating, as required. If the coating is unevenly thick, a picking off will take place during development, and the picture will turn out rough and not as desired.

Translated by

HENRY DIETRICH.

(*To be continued.*)

TRIMMING AND MOUNTING PHOTOGRAPHS.

THE following paper, recently read before the Brixton and Clapham Camera Club (England), by Mr. Roland C. Whiting, is so laden with valuable matter that we give it to our readers in its entirety. It is only possible to do so by reprinting from our English contemporaries, and we would make acknowledgment to *The British Journal of Photography* and the *Amateur Photographer* for the full text as published by them :

"The most difficult matter in the production of a successful photographic picture is sometimes not experienced until the final operations of trimming and mounting are arrived at. This at first may seem a somewhat advanced statement ; but, when the pictures which have been exhibited during the past twelve months are called to mind, the number which have either been marred or positively spoilt by injudicious or careless trimming and immoderate or unsuitable mounting are seen at once to be unreasonably large. This, of course, is opposite to what should be, and it is intended to here point out some of the pitfalls which lay in the way of the photographer and how they may be avoided.

"I do not feel that any apology is due from me for having brought this subject before you, as it is one of such vital importance, and many a picture which contains much that is good is rendered imperfect from this cause alone. The reasons of these failures are not far to seek. The operator has spent any amount of time in the artistic details of the work, and exerted a great deal of energy in correct manipulation, and eventually obtains a picture more or less perfect. Of course it is produced on a standard-sized plate, and the print follows the same dimensions. It does not strike him that an alteration in its shape may do so much to improve its quality, or render perfect a faulty composition, and the mount is only looked upon as a means of support instead of playing a great part in the picture itself. These same remarks may also be applied to the framing, and even to the surroundings when the picture hangs on the wall, but this would carry us too far into the subject to treat thoroughly in one evening, so this part of the subject must unavoidably be ignored.

"It may be interesting to you to know why the margins and surroundings of a picture play such importance in the completeness of the whole. It is easily explained. When we gaze upon the wondrous beauty of Nature, in all elaborate complication of organic form and color, the eyes each perceive a circular picture, which, combined, produce a view that is something of an oval in shape, but no sense of limitation is experienced. The combined images gradually fade away around the edges of the scene, the limits of which are absolute blackness, and yet presence of this black surrounding is unobserved. In other words, the view fills the total angle of vision. Now, when we look upon a picture, be it photograph, engraving, or painting, the view does not, by any means, fill up the total amount seen by the eyes, but we observe that which is around it. Whether we wish it or not, this superfluous matter forces itself upon us, and we are bound to recognize its presence, and, as in Nature, the whole scene before the eyes is taken note of. It is thus that the space surrounding a picture plays such an important part in the sensation which it produces upon us, and it is therefore necessary that its action upon the whole should be taken into account when composing the picture and when presenting the same to the gaze. We will now discuss some of the points which have this influence upon the picture, and see what means can be taken to turn them to good account.

"The first subject which claims our attention, then, is the height of the horizon, and this is not such an unimportant matter as it sometimes seems to be thought. It has always been a matter of great dispute, and is largely dependent upon the feelings of the person looking at it. Perhaps I had better explain that by the horizon is meant that line which is produced where the sky and sea, or land on the sea level, meet together. When land rises above the sea level, the line where sky and land meet is best described as the sky line. The horizon will then be the distant, though invisible, sea level. This distinction is absolutely necessary in questions relating to perspective.

"There is an old adage which says that the horizon should never be exactly in the center of the picture, and some adhere to this rule with a most unswerving tenacity; but it must be remembered that no rule in art is absolutely binding, and may be disobeyed if the artist has sufficient ability to do so without offending the eye. Now, this rule must not be looked upon as binding in every case. If the horizon is represented as a straight line, such as the juncture of sea and sky present, it is, of course, against good taste to allow it to equally divide the picture, because the interest in the picture is divided, the sky claims an equal amount of interest with the landscape, and the eye and mind tire in trying to establish a sense of repose. In the pictures of the Dutch school we find the horizon very low, in some cases abnormally so, and great effort has been exerted to produce a sky which in itself is a picture, but which, by a most subtle craft, has been made quite subordinate to the landscape.

"If we ascend to a great height, such as up a mountain, we are enabled to see to greater distance than if we remain on a level with the sea. The landscape stretches out before us, and the horizon apparently rises as the line of vision is heightened. Not only the foreground, but the middle distance, is broadened out, and, together with the alteration of the perspective angle, produces the idea of space. I wish you to note particularly this last statement, as its influence upon my next remark is of great importance.

"If a picture is made from a low level, and the horizon is placed high up, an effect of distance, and consequently height, is produced, but the angle of perspective has not been altered, neither has the middle distance been broadened out. Now, our organs of vision, though oft maligned and much abused, are a great deal more truthful than ourselves, and they at once take note of the changed state of affairs, and are not slow to observe—even though we are not able to point out the cause—that the whole of the conditions attendant upon the raised horizon have not been complied with, and so a conflicting feeling is induced, and the truthful eye is unsatisfied and offended.

"The treatment of the low horizon requires similar comments, but in a more modified degree, for it is not so great an offence to place it too low as it is too high. This is because the distant perspective contains lines of such small dimensions that they are not so readily discerned as when more foreground is shown, and, of course, the same rule applies to the mid distance. It will thus be seen from these remarks that it is better to cut away the base of the picture than the top, but it is still better not to err at all. In general practice, from a quarter to one-third the height of picture will be the best height to place the horizon, and, with care and a trained eye, it is mostly possible to get that line 'where earth and sky melt into one' in the place best fitted for it when making the negative.

"In architectural and portrait subjects we have another principle which, although having connection with that of height, is really more of an optical illusion than anything else, and can be turned to good account. It will be at once understood when I call to your mind the fact that the eye always judges the size and consequently the height of objects by comparison. The idea produced, however, is not always a truthful one, and therefore care must be taken not to violate its use. If a building is high, the nearer the top of it comes to the top of the mount, the higher will it appear, and the same may be said of a portrait. It is therefore obvious that it is possible to make a man, or some other tower of strength, to appear much more majestic than is really the case. But in instances where attention is desired to be called to the towering height of a building, or where the appearance of importance and command, or majesty and power, are desired to be expressed in a man, it is well to place the top of the subject well up toward the top of the picture. A large amount of head room dwarfs a subject. In the early days of portrait photography it was advanced as a theory that when a portrait of a person was to be represented in two positions, one sitting and one standing, the sitting position should occupy no more room than if the man standing had sat down on a chair just where he was standing. Thus, whilst the feet remained the same distance from the base of the

PHOTOGRAPH BY
W. B. CAIRNS, NEWARK, N. J.

A BRIGHT OUTLOOK.

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picture in both cases, the sitting posture would have an extra amount of head room. When put into practice, the sitting figure thus appeared very small, because the space above the head seemed to overpower the subject, and to cause it to appear insignificant. This will show that great care is required in determining what amount to cut away from the length of the picture.

"Now, just as the adding to, or cutting away from, the top or bottom of the picture is capable of meaning so much to the finished result, so likewise will the width require the same attention. In every picture there should be one spot which is occupied by the principal object, which is the chief point of attention, from which the picture receives its title, and to which the eye is ever and anon returning, finding fresh interest and pleasure. It need not be large, it may be small, but owing to the general arrangement of the composition, its lighting, and its position, is the very keynote and germ of the whole scheme. The position of this object may do much to make or mar the effect, and upon it much depends the correct reading of the tale which the picture tells. Should this particular object be placed too near to one side, it will look as though it were entering or leaving the picture, according to which direction it appears to progress. On the other hand, should it be too central, except in rare cases, it will lose interest and power. This applies most particularly to portraiture. I have sometimes seen the figure so placed that it is nearest to that side which it faces, with the result that it leaves an impression that the person depicted was about to leave the print. It is better if the figure does not occupy the central position, to put it with the back nearest to the margin. This will give the idea of arrested motion.

"I may here mention that the moment preceding the critical point in any movement is the best to show when movement is to be represented. Thus, with an object which is apparently passing the spectator, the best impression of movement will be the moment before the center of the picture is reached; of a rising and falling billow, the moment just before the highest point is arrived at; of a boy throwing a ball, the moment just before the hand reaches its greatest distance from the body. The ancient Greeks were extremely happy in the portraying of movement, as instance the statue of Discobolus. In all pictorial work there must be a perfect rhythm, which must be as evident as in poetry and music—a rhythm which is insensibly felt, but which is none the less powerful in filling the picture with that which makes it give pleasure in its perusal. This rhythm is produced by the proper arrangement of lines, and by the just subordination of its various parts to those objects which give the picture its title. The lines should be so arranged that the eye is led from one object to another, back to the principal object, and yet again and again over the scene until the eye becomes perfectly familiar with all its details—until it learns it all by heart, as it were. Then, and not till then, will the eye become satiated with the mystic pleasure which the examining of a good picture yields.

"In trimming a print, care should be taken that all these conducting lines should be so placed that the best effect and value are given to them. This will not be the case if too much space is devoted to any particular part of the picture, and often this may be corrected by trimming off some of the superabundant print. It is by exercise of care in the arrangement of these lines that the eye is led to forget that there is a margin to the picture, and they should, therefore, lead away from it to the principal object. To do this, the arrangement of these lines must of necessity be somewhat concentric, and where they are large, that is to say, when they are near the outside of the picture, care must be taken that they come near its edges, or, in other words, are not made too central. To make this matter more clear, imagine the picture to represent a view of a country church seen through the trees. On the right is a large tree, whose trunk and bough produce a line which leads up parallel, or nearly so, with the side of the picture, ending in the bough, which travels round the top and finally droops towards the church. A very prominent line is thus produced. Supposing, now, that on the right there is considerable space devoted to objects of less importance. The result will be that the tree will be too much central, and the balance will be disturbed. If, now, some of this space is trimmed away, the tree will be brought nearer to the edge, and balance will be restored.

(*To be continued.*)

THE CHEMISTRY OF FIXING SODA.

By Dr. R. E. Liesegang.

FROM solutions of hyposulphite of soda in acids, the hyposulphite acid is liberated first, but it decomposes at once by secreting sulphur. This decomposition proceeds so much quicker the more concentrated and hotter the solution may be. At ordinary temperature it will take several hours. The nature of the acid and quantity have no influence upon the rapidity of decomposition, and the increasing influence of higher temperature will also soon cease. The duration of existence of the hyposulphite acid in aqueous solution is, at equal remaining temperature, exactly proportional to weight of water present upon 1 part of weight of hyposulphite acid. E. Matthias-Plessy points to the fact, that cold saturated solutions of the hyposulphite of soda can be decomposed with one-half of their volume of acetic acid, without giving any essential sulphur secretion. Even solutions which contained 2 molecules acetic acid to 1 molecule of hyposulphite gave in crystallizing handsomer crystals of the hyposulphite salt than aqueous solution. According to W. Vaubel the decomposition of a solution of $Na_2 S_2 O_3 + 5 H_2 O$ is caused by acids, sometimes also sulphur-hydrogen, for instance, by application of carbonic acid and sulphuric acid of 84 per cent. or higher concentration, particularly if the solid salt is heated with these acids. Therefore he accepts the following decomposition—reactions of the hyposulphite acid :

1. $H_2 S_2 O_3 = H_2 S + S O_3$.
2. $H_2 S + H_2 S O_4 = S + S O_2 + 2 H_2 O$.
3. $2 H_2 S + S O_2 = 3 S + 2 H_2 O$.
4. $3 H_2 S + S O_3 = 4 S + 3 H_2 O$.

The quantities of sulphur and dioxide of sulphur required according to equation : $H_2 S_2 O_3 = H_2 O + S + S O_2$, never result, but generally quantities containing more sulphur and less sulphurous acid. In favor of Vaubel's view is also the fact that hyposulphite of soda decomposes with oxide of silver as follows : $Na_2 S_2 O_3 + Ag_2 O = Ag_2 S + Na_2 S O_4$, and further, that from acid solutions of metals that can be precipitated by sulphur hydrogen, hyposulphite of soda will also secrete the sulphides. Vortman, on the contrary, is of the opinion that the introducing decomposition reaction should be formulated $H_2 S_3 O_3 = H_2 S + O + S O_2$. The final result would depend upon circumstances. If, for instance, metals are missing, which can be precipitated by $H_2 S$, the oxygen will decompose the sulphate hydrogen by secretion of sulphur. Otherwise the sulphurous acid is either oxidized to sulphuric acid, or a part of the not yet decomposed hyposulphite is transformed into tetrapenta thionate. The possibility of the formation of the latter salts is admitted by Vaubel.

Vielliers claimed to have discovered the soda salt of a new acid by the action of sulphurous acid upon hyposulphite of soda, which he calls disulfo-per-sulphuric acid. But upon investigation it proved to be the soda tetrathionate $Na_2 S_4 O_6 + 2 H_2 O$, which had formed alongside of trithionate : $2 Na_2 S_2 O_3 + 3 S O_2 = Na_2 S_4 O_6 + Na_2 S_3 O_6$. The former salt crystallizes first. By application of concentrated potassium hyposulphite solutions trithionate will secrete first.

Translated by

Henry Dietrich.

PROCESS WORK

ANENT FAILURES IN THE NEGATIVE PROCESS.

By H. D. Farquhar.

IN the last number of the Bulletin Mr. B. J. Richardson contributes an article in reply to my recent article "Failures in the Negative Process." He says we do not want anything to do with failures. I heartily agree with Mr. Richardson on that point, but I would like to have him explain how any one can work the wet plate process without sometime or other coming in contact with some of the difficulties mentioned in my article, or some other more vexing ones that I have not mentioned, the cause of which, perhaps could not instantly be explained by the most learned wet plate photographer in existence.

Regarding the old gun cotton, I did not intend to be understood as referring to its age alone, as I think will be seen by a second glance at the reference, but referred to age and inferior quality.

Mr. Richardson also says that alcohol is poison to the developer—poison taken internally usually means death, or at least, considerable misery. I have used alcohol in my developer, and know that nearly every process worker does likewise, and the negatives they produce surely do not have the appearance of being made with a poisoned or dead developer.

In my article, however, I did not recommend using alcohol, but advised the use of liquid glue, which will cause the developer to adhere to the film, and is likely perhaps to cause less trouble than alcohol.

The collodion recommended by Mr. Richardson may be an excellent article for portrait work, but it would hardly do for process work, which is the subject under consideration, and which requires entirely different treatment from studio portraiture.

As to the care of the bath, my experience has been that the less the bath was boiled, the longer could I get good results from it, never having occasion to boil more than twice a week, although kept in constant use from morning until night. At the end of each day, silver was added to bring the bath to the required strength, the amount depending on the consumption of the bath by the dipping of the plates.

I am much afraid that if the process workers made as free use of the silver bath as Mr. Richardson recommends, there would be few of them left who could show a balance on the right side of the ledger at the close of the year.

PROCESS NOTES.

Process Negatives on Dry Plates.

THE following notes are gathered from a paper by Mr. T. W. Lascelles, who had within the last three years made over eighteen thousand satisfactory negatives on dry plates. A few negatives from which blocks had been made were shown; also prints from blocks made by means of dry plate negatives. Both prints and negatives came quite as a revelation to many present, the audience including some of the foremost workers in England. The form of diaphragm opening, screen distance, focusing, etc., were fully explained by means of diagrams. The reader must for these matters consult the verbatim report to be published in the *Journal* of the Royal Photographic Society, where, probably, all necessary diagrams will be reproduced. The screen recommended was that by Max Levy—cross-lined diagonal. In case of copying a wash drawing, same size, illuminated by two arc lights, each 2,000 candle-power, with semi circular reflectors, painted white (inside), give the following exposure in three parts: First, a cross stop, arms of cross reaching to *f*/16 circle. Three minutes, cap lens and change stop to *f*/32 and expose fifteen minutes. Cap lens again. Hang sheet of white paper over the original. Insert stop *f*/64, and expose four minutes. The idea or intention of this third exposure is to force the dots through the gelatine. The exposures just given are suitable for an Ilford "process" plate. If, however, an Ilford "half-tone" plate be used, the exposures may be cut down to say one-eighth of those just given. It must be supposed that a 120-line screen is used. In development he does not advocate any bromide. His formula is as follows:

A.—Hydrochinon	1¾	ounces.
Soda sulphite	8	ounces.
Water	80	"
B.—Caustic soda	2¾	"
Water	80	"

Use *A* and *B* in equal parts. To fix, use:

Hypo	16	ounces.
Water	40	"

To intensify (where necessary), the following can be recommended:

Mercury bichloride	3	ounces.
Ammonium chloride	2	"
Water	80	"

To reduce, if necessary, prepare the following:

C.—Potassium ferricyanide	1	pound.
Hot water	80	ounces.
D.—Hypo	1	pound.
Water	80	ounces.

Take equal parts of *C* and *D* and mix thoroughly just before using. This reducer is strong and energetic, so that it must not be allowed to act too long. Care must be taken to see that the plate is covered with it in an even wave, or markings are very likely to ensue. Plates should be edged and backed before exposure. Vaseline on the ground-glass is a help in focusing. If the lights are bunged up, the exposure with × stop was too long. If detail is lacking, the exposure with $f/32$ was too short.

F. C. LAMBERT.

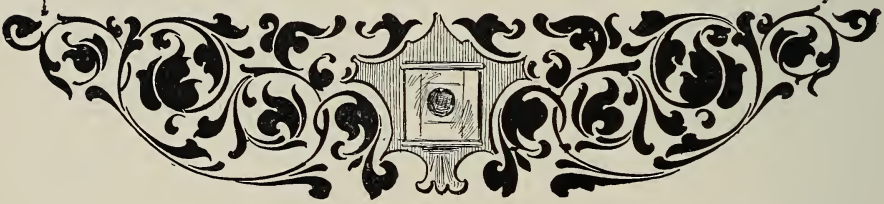
PROCESS MATTERS, FROM AN ART EDITOR'S POINT OF VIEW.

MR. WALLACE L. CROWDIE, editor of *The Artist*, a high-class illustrated periodical, doubtless well known in America, gave his views on the above topic before the members of the Royal Photographic Society. Those who are called upon to do work for illustration, either in the way of making prints or blocks, cannot fail to be interested to know how the art editor views the matter. For, after all, it is upon his dictum that the fate of their work finally depends. The chief points of general and practical interest may be briefly summarized somewhat thus: The original. This may be, of course, a positive print on paper—a silver print usually giving the best results—or it may be a transparency on glass. But it should be remembered that the original must be really good, if a good printing block is sought for. The negative. This, also, must be made with due care as to point of view and lighting of the subject, and a lens of proper length of focus, as the case may require. The art editor not seldom has some difficulty in getting the photographer to see and understand exactly what is wanted. For example, the lecturer wanted a certain chair photographed, but the man who made the negative must needs introduce various other things. Half the chair was hidden by a piece of lace, so that the photograph submitted was in reality useless for the purpose for which it was wanted. In another instance of a cathedral front, only part of the spires were included on the plate, rendering it also unfit for acceptance. Again, an interior was taken with a lens of too long focus, and it took a tiny room instead of one of good proportions, and so on. Other instances of defective lighting were pointed out, cases where the shadows were devoid of detail, just black waves. The lecturer explained that in Nature we have not black and white to deal with, but half-tone, and that the feeling of strong light and dark depends on the surrounding tones and due regard to gradation. This point must be kept in mind, not only in making the negative and the print for reproduction, but also the block-maker must remember it. The block-maker must bear in mind always that the block is going to be printed on a machine, and all must remember that punctuality is of the greatest importance. The lecturer condemned the practice of cutting away portions of blocks so that they gave just flat patches of white paper on the print. This corresponded to nothing in Nature, and was quite false in tone. He also deprecated the use of the graver to give what is sometimes termed "wood-cut finish." The art of wood-cutting is practically extinct, and even in its best days only few men produced good work. The proportion of good among poor blocks was very small indeed. Then, again, to add graver work or wood-cutting to a photo block was to make, at best, what could only be a mongrel result. In the case of the roulette, however, there were times when skillful use, with judgment and taste, would give valuable aid. Then, as regards the so-called "art papers"—papers with a nasty, shiny, pasty, glossy surface—what could be further from art? These papers were just an abomination, and ought to be got rid of whenever and wherever possible. By the infusion, among both people and printers, of more refined, cultured ideas on art matters, the subject of illustration would advance. The improvements during the last ten years or so were considerable. Whether photography was or was not entitled to a place among the fine arts was an open question, but that was no reason whatever against a photographer being an artist.

F. C. Lambert.

An article recently published in one of the English journals suggests the use of liquid photogravure ground, instead of the old dusting-box method, and speaks of the process as being similar to the liquid ground used in the old aquatint engraving process. A solution of resin in rectified spirit is prepared in three different proportions, each in a different bottle. These three are finally combined in different proportions until, on drying, the desired grain is apparent. The correct proportions having thus been obtained, the plate is coated with the solution in these proportions and allowed to dry, after the surplus has been run off the edge. Care must be exercised not to breathe or blow on the plate or to allow a strong draught to strike it, as an uneven ground will result.

SOCIETIES



At the very successful Print Exhibition of the Brooklyn Academy of Photography, held last month, the standard of excellence was high, and the matter of award one of very close contest. The same system was adopted that worked so successfully last year, and the decisions for the prize pictures, instead of being left to a jury, were put in the hands of the members of the society. Sixteen sets of prints were exhibited in the several classes of landscape, marine, motion, portrait, still life, animals, groups, interiors, architecture and miscellaneous, and the number of prints was altogether about two hundred and fifty, with almost three hundred lantern slides.

The officers for the present year are: H. B. Fullerton, President; Samuel Baron, First Vice-President; F. M. Lawrence, Second Vice-

President; William Arnold, Recording Secretary; W. B. Dudley, Corresponding Secretary; W. T. Wintringham, Treasurer; A. F. Ormsbee, Curator.

* * *

The tenth annual exhibition of photographs, given by the Providence Camera Club, occurred on March 24th to 27th, and was in all ways very successful. The programme published by the club is a very artistic and quite a pretentious little book, having a photographic illustration and several half-tone reproductions. The club is to be congratulated upon its success.

* * *

The Bulletin has received from the Photographic Society of London a neatly printed booklet describing the methods of work adopted by the club, the apparatus in its possession, and matters of general interest regarding the association, which is printed for private circulation, and for which the Bulletin extends its thanks.

* * *

At the testing of the lantern slides by the American Lantern Slide Interchange, the Rutland Camera Club is said to have lately been accorded the highest average among the new clubs, their average per cent. standing at about 60, which is considered high.

* * *

At the recent meeting of the Orange Camera Club the following officers were elected for the ensuing year: George E. Melendy, President; George E. Van Wagenen, Vice-President; Frank A. Lord, Secretary; D. S. Plumb, Treasurer.

* * *

The members of the Pittsburgh Amateur Photographers' Society are making strong efforts to secure a permanent gallery and space for a photographic library. A series of photographs of the entire exhibit lately made at the First Annual Salon have been made and sent to Mr. Carnegie, in whose beautiful new building their new quarters are to be. If their plan succeeds, they will be the second photographic society in this country to have established a permanent gallery and photographic library, the only other of which we know being the Boston Photographic Society, and we sincerely wish them success in their project.

* * *

A new society of amateur photographers has been organized in Asheville, N. C., with the following officers: Dr. J. E. David, President; W. F. Randolph, Secretary and Treasurer.

* * *

The officers of the Atlantic City Photographic Society for the present year are: Herbert N. Morse, President; Ferd. Stadler, Jr., Vice-President; Hubert Somers, Secretary; Leonard D. Algar, Treasurer. They announce that their darkrooms are open to all members of photographic clubs who show membership cards.

Our Reviewer.
School of Practical Process Engraving

THE ANNUAL REPORT for 1897 of the Liverpool Amateur Photographic Association is before us and makes a very pretentious appearance. It contains 60 pages of matter, consisting of rules of the association, reports, competitions, catalogue of Library, lists of members, etc., and indicates a degree of prosperity and activity that must be very gratifying to its members.

THE OPTICIAN AND PHOTOGRAPHIC TRADES REVIEW says of Metacarbol: "The reagent which has been registered under the name of 'Metacarbol is a newly discovered and patented product which possesses all the qualities required in a perfect developer. It yields rich, fully developed negatives having ample density and excellent printing quality. Plates developed with 'Metacarbol' are exceptionally brilliant and under no circumstances is there any tendency to the production of fog.

"Moreover, 'Metacarbol' is an extremely powerful developer, so that a very small amount of the reagent will serve to make up a large quantity of solution. Given anything approaching what is reasonable in the matter of exposure, weak lifeless negatives will never be obtained when developing with 'Metacarbol.' This substance, moreover, does not stain or injuriously affect either the hands or clothes, and it may be relied upon under all circumstances."

DECEMBER 15, 1897.

MESSRS. J. H. DALLMEYER, LTD., LONDON:

DEAR SIRS,—As an old practical photographer I consider that your "New Stigmated Lens" records the greatest optical achievement of our age. It combines the highest speed with minute definition over the whole area and depth of field. I am satisfied with No. 9 beyond my expectations, and in common gratitude I have to thank you, and remain

Yours most respectfully,
F. G. O. STUART.

"LANTERN SLIDES: HOW TO MAKE AND COLOR THEM." By D. L. Elmendorf. "This is a thoroughly practical handbook, lucidly describing every step, from the selection of the negative to mounting the slide. The chapter on coloring lantern slides is quite unique and constitutes, in fact, the only practical treatise yet published on this subject. The 'diseases' of lantern slides, with their remedies, are fully treated of; and all chemicals, apparatus and methods used are clearly and accurately explained. The book, which is illustrated with both woodcuts and half-tone engravings, is printed on heavy paper and handsomely bound in cloth."—*The Optician and Photographic Trade's Review.*

"PRACTICAL HALF-TONE AND TRICOLOR ENGRAVING," by A. C. Austin, is the title of a new work on the subject of half-tone plate-making, just published by The Professional Photographer Publishing Company, of Buffalo, N. Y. The book is well gotten up and illustrated with several plates in color and monochrome. It contains 158 pages of matter in which will be found many formulas and tables, and will prove a valuable addition to the literature of this subject.

"IT (" The International Annual") is brimful of all that is dear to the heart of the true amateur photographer, and contains so much interesting matter that it cannot be hastily scanned through; on the contrary, there is food for thought enough to last the year, and still some crumbs can be left over."—WALTER SPRANGE, Editor *Photographic Blue Book.*

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

Photograph by JOHN RÖSCH.

NEARING THE GOAL.

ANTHONY'S
Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.
W. I. SCANDLIN.

VOL. XXIX. JUNE, 1898. NO. 6.

A RARE PHOTOGRAPHIC FIND.

IT is not often in the history of an art-science no older than photography that important specimens of its early-day work, the very existence of which has hitherto been unknown, are found in any quantity. The BULLETIN has lately seen a collection of such work which is probably unique in the history of photography, and which is of great interest, both as a demonstration of the perfection to which the science had been brought in the beginning of the fifties, and the historic importance attaching to photographic views made during these years.

The negatives from which the two illustrations accompanying this article are reproduced, form part of a very considerable collection which has lately come into the possession of Mr. John Rösch, through whose kindness the BULLETIN is enabled to bring them to the attention of its readers. These negatives are made upon paper, and were undoubtedly produced under the old calotype or Talbotype process, which was patented by Fox Talbot in England in 1841. Many of the negatives are signed by their maker, Victor Prevost, and a number of them bear in addition to the signature, the title, or a serial number, and the date, which latter ranges from 1852 to 1854, and the subjects are such, in several cases, as to establish the correctness of the dates beyond a doubt. The negatives are of extremely good quality, both chemically and artistically, and vary in size from about 6 by 10 to 15 by 19 inches, those here reproduced measuring 10½ by 13½ inches each.

The subjects cover a wide range, including copies of paintings, out-of-door views, and a number of interiors, several of the views presented being made in and about New York City, and including among others a number of the old Crystal Palace in process of erection, and others of its interior after it was opened to the public, which, with

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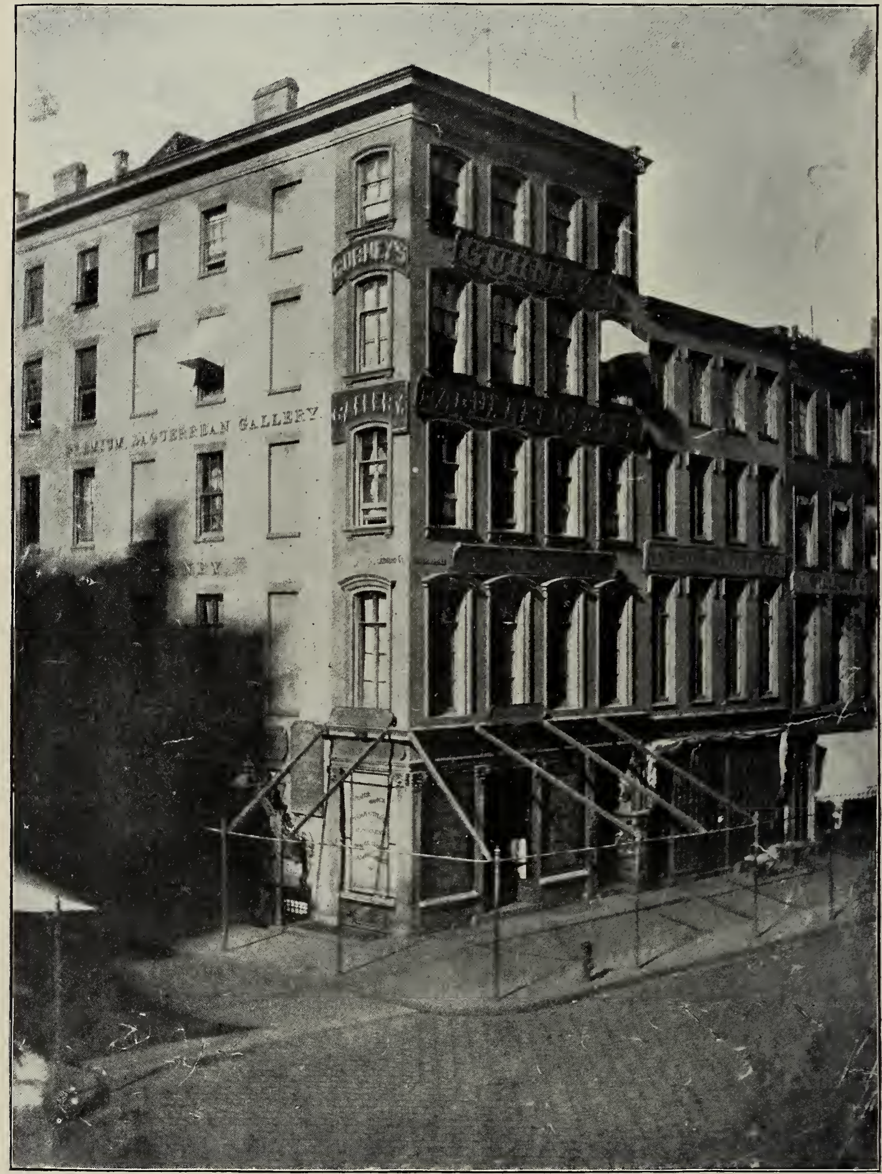
many other ear-marks, conclusively establish dates. The technical perfection of the negatives, their size, and the magnitude of the collection, seem to show that their maker was an adept in the then young art of photography, and the choice of view and subject prove him to have been an artist of no mean ability.

The views accompanying this article are selected more from their interest to the fraternity as showing the business abodes of two of the

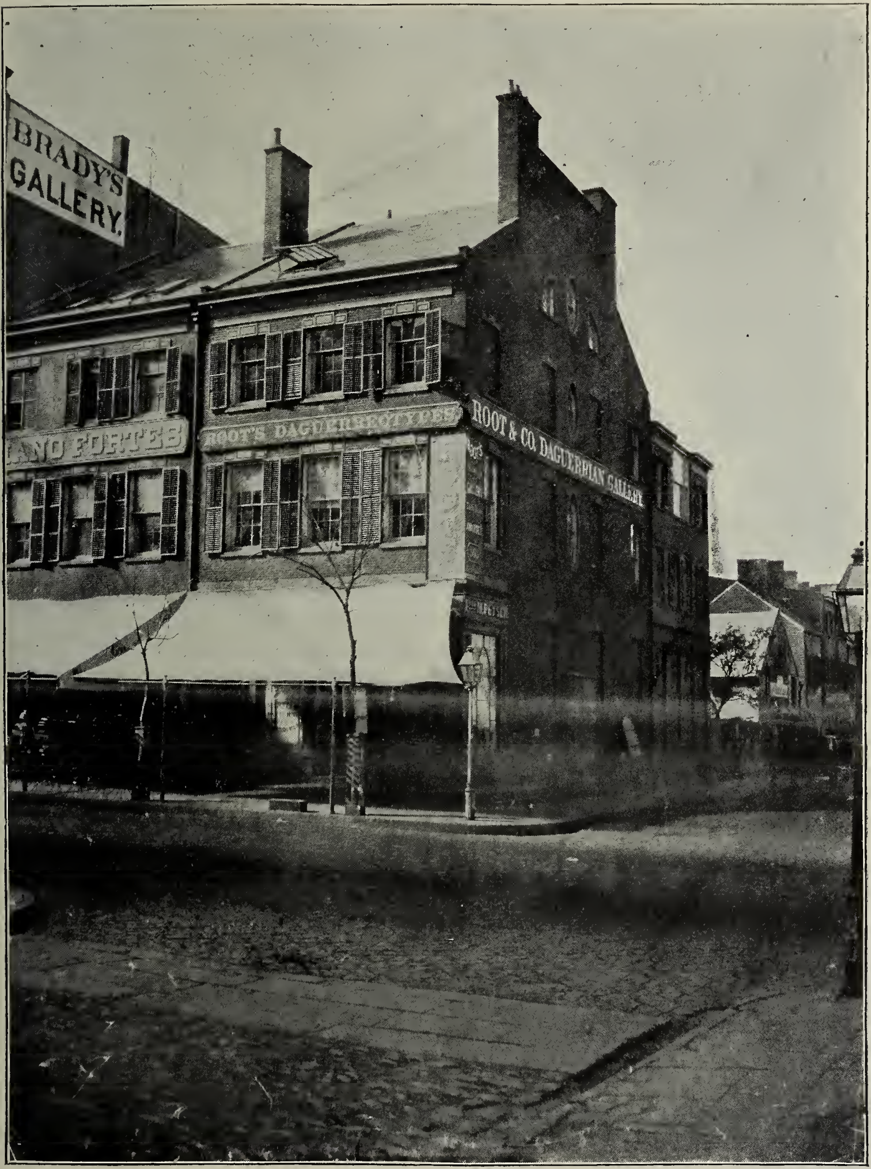


GURNEY'S DAGUERREAN GALLERY,

Broadway and Leonard Street, New York. Original negative made on waxed paper (calotype) by Victor Prevost about 1852.

pioneers in daguerreotyping, than for any excellence of composition, which in subjects of this nature would hardly be looked for.

In making announcement of the discovery of this collection the Bulletin will be very glad to receive from any of its older friends of the profession any information that may tend to throw light upon their probable history, and how it is that a man with the abilities of Victor Prevost is not better known to-day in the annals of photography.



BRADY'S AND ROOT'S GALLERIES,

Broadway and Franklin Street. Original negative made on waxed paper (calotype) by Victor Prevost about 1852.

Items of Interest

THE BULLETIN is in receipt from John H. McGibbon, office of the Special Commissioner of the United States for the Paris International Exposition of 1900, of the message of the President, together with the report of the Special Commissioner to the Paris Exposition, by which it is apparent that it is the purpose of the Government to have prepared and exhibited a very complete and elaborate representation of the progress of art-sciences, manufactures, etc., in the United States during the past few years. A very considerable space has been allotted to the department of Letters, Sciences and Arts, in which photography will be represented in two categories—professional and amateur.

Full particulars can be obtained from the office of this Special Commissioner, as above, Herald Building, Chicago.

* * *

WE are in receipt of a communication from the editors of the *Photograms Annual* of '98, asking that the attention of our readers be drawn to the fact that preliminary arrangements for the *Annual* are now under way, and inviting them to submit their latest works with a view to reproduction in its pages. It is announced that considerable space will be devoted to the Royal Photographic Society's Exhibition, now open at the Crystal Palace, and more space will be given to the American section than heretofore. All pictures for use in the *Annual* must be in the publishers' hands by the 1st of September, and may be forwarded to *Photograms*, 6 Farringdon Avenue, London, England.

* * *

THE Photographers' Club of New England will hold its Second Annual Convention in Copley Hall, Boston, July 27th, 28th and 29th, offering, besides the usual grand and class prizes, a gold and silver medal to professional photographers outside of New England, and a gold and silver medal to amateur photographers in two different classes.

Full particulars can be obtained from the Secretary, Bartlett F. Kenney, 270 Boylston Street, Boston.

* * *

THE Fourth Annual Convention of the Northwestern Photographers' Association will be held in Minneapolis, Minn., August 23d and 24th. They are laying out for a big time, which they will undoubtedly enjoy.

Full particulars as to prizes and classification of exhibits can be obtained from the Secretary, P. J. Nelson, Anoka, Minn.

A VERY enjoyable lantern-slide entertainment was given on the 28th of April to the employees, patrons and friends of W. P. Buchanan, of Philadelphia, under the auspices of the "Kodak Salmagundi," on which occasion over two hundred slides were shown, and a general good time, including dancing, enjoyed by all present.

* * *

OUR attention has been called to the fact that the illustrations used in the article on "Posing," in the May number of the BULLETIN, are without credit to the photographer, and we would say that they were made to illustrate the article, and are the work of the author, Dr. Hugo Erichsen.

* * *

BY the time the BULLETIN is in the hands of its readers, the Lovell Dry Plate Company will have completed moving from the old to the new quarters, and the Climax plates of the future will be manufactured in New Rochelle, N. Y., instead of Portland, Me., as has previously been the case. With the accession of more modern improvements, shipping facilities and general advantages which will be obtained, users of the Climax will doubtless benefit greatly.

* * *

THE Philadelphia Photographic Salon will be opened at the galleries of the Academy of Fine Arts, Philadelphia, October 24th, and remain open until November 12th of this year. The purpose of the exhibition is to show only such pictures produced by photography as may give distinct evidence of individual artistic feeling and execution. Only such pictures will be hung as, in the opinion of the jury, are within the scope of the exhibition as above expressed. No special awards are offered, but each exhibitor will be furnished with a certificate of the acceptance of his work, which, it is believed, will be sufficient recognition to insure a very large and artistic hanging.

Full particulars and blanks for entry can be obtained by addressing Harrison S. Morris, Pennsylvania Academy of Fine Arts, Philadelphia.

* * *

A SERIES of good photographs of North American Indians is desired by Rev. H. N. Hutchinson, the well-known English author, who is preparing an elaborate work dealing with aboriginal races. Photographers who can supply such will greatly oblige Mr. Hutchinson by communicating with him at 7 Cowley street, Westminster, S.W., London. He would also like portraits of the Sandwich Islanders and Polynesians.

* * *

THE photographers of Texas held a very enthusiastic meeting in May, and organized a State association, which will hold its first convention during the coming fall at Dallas. J. C. Deane, of Waco, was elected President; Fletcher Allen, of Kosse, First Vice-President; W. H. Morris, of Galveston, Second Vice-President; Frank Leffler, of Fort Worth, Secretary, and W. D. Jackson, of Waco, Treasurer.

THE CHAUTAUQUA CONVENTION.

THE Eighteenth Convention of the Photographers' Association of America will mark a distinct advance over the policy of former years, most especially in the system adopted for marking exhibits. The three divisions, viz., posing, lighting and chemical effect, are a relic of wet-plate days when the operator's skill was mechanical rather than artistic. That this system should have prevailed for so many years proves that creative ability is a comparatively new field for the photographer, a position he has been forced into in self defence. Although he has been somewhat slow in adopting it, he has not been at all slow in perfecting himself in it.

It is not at all in keeping with the character and aims of this Association that it has not sooner recognized and encouraged this artistic tendency. Some excellent exhibits of the last Convention were not properly recognized through the inability of the judges under the system of marking prescribed, to give them any credit for their good qualities.

At the coming meet the judges will not be hampered by these restrictions. This does not mean that the impressionistic picture, whose merit depends upon the imagination of the spectator, will be the standard. It means that any honest effort to obtain "breadth," "tone," and other artistic qualities will receive due consideration, but we cannot ignore the artisan for the artist. Our profession demands first of all good workmanship.

The old-fashioned question box will be a feature of the mornings' sessions, and every endeavor made to have its discussions interesting and profitable. Those who believe in the higher development of photography will be pleased to note that all size restrictions have been removed from the *Genre* class, and that artistic conception will be given its full value. Professor Griffiths will give a half-hour's talk each morning. A large part of this time will be devoted to practical criticism of the pictures on exhibition. Professor Griffiths has the happy faculty of entertaining his audience so well that the instruction never becomes tedious.

The American Aristotype Company will continue their school of photography. Past experience has taught them the needs and limitations of such instruction. Their plans are laid for a systematic course that will repay one for the entire expense of attending the Convention. The medals for 1898 are the handsomest the Association has ever given out. The class and grade of same will be engraved on the back, with a blank space for name of winner. The awards will be made and the medals delivered the second day of the Convention. The winning exhibits will be decorated with ribbons ; a separate color for each grade. A feature that will materially assist in comparing their merits. The judges will perform their work before the Convention opens. In order that this part of the programme may be carried out, we call your especial attention to Rule No. 5 in the prize list, viz., that all exhibits *must* be in Jamestown on or before July 1st.

This rule will be strictly adhered to. No exhibits will be taken from the express offices after that date. We urge those sending from a distance to allow ample time for transportation. The association will have the advantage of the very liberal reduction in railroad rates that were given last year. Full information in this regard, together with a list of hotels and rates, will be published later. Remit dues to George W. Varney, No. 3937 Drexel Boulevard, Chicago. Apply to the Secretary for entry blanks and prize lists and any further information.

J. WILL KELMER, *President*,
Hazleton, Pa.

GEO. B. SPERRY, *Secretary*,
No. 319 Summit St., Toledo, O.

HO FOR CHAUTAUQUA!

FOLLOWING the custom established three years ago, the BULLETIN takes pleasure in announcing that it will inaugurate a BULLETIN excursion party to the Convention, and will undertake to provide the best of accommodation, good company, and, so far as it can promise, a pleasurable trip to all who may intend to go to the Convention from New York and vicinity; and it will be glad to have the names of those intending to attend the Convention at an early date.

It is impossible, at the present moment, to say just what the fare will be; but it is presumed that the same arrangements will be made as were obtained last year, which will bring the price of the fare from New York to Celoron and return, $12; a double berth, $2.50, and the price of a whole section, or two berths, $5. The train on which the party will leave New York is due to leave the Erie Dépot, at the foot of Chambers street, at 7.30 in the evening of Sunday, July 10th, and will arrive in Jamestown at 7.30 Monday morning. The BULLETIN hopes to have even a larger party than last year, which more than filled a parlor car, and which was the beginning of acquaintance and friendship that has lasted, in several cases, throughout the year, to the advantage of all interested. It goes without saying that a party of this kind can pass away the time consumed in traveling more pleasantly than can a single individual traveling by himself, and the BULLETIN urges all its friends who contemplate attending the Convention to join its party for the Convention of 1898. It will be necessary, in order that the best facilities available are obtained for all, that those intending to make a part of the excursion signify their intention at once, in order that proper accommodations can be secured. We, therefore, ask all interested and intending to attend to send their names or communicate at once with the editor of the BULLETIN, 591 Broadway, New York, who will answer any questions that may be asked, and see to it that accommodations are provided.

Hotel rates, we understand, will be made with special reference to the Convention, and will probably list about as last year. It will be well for those intending to attend the Convention to make arrangements beforehand for their rooms, as it is not safe to leave matters of this kind until the last moment.

Be it remembered that ladies are welcome, and will be entertained while in Celoron.

The BULLETIN hopes to have a large and enthusiastic party for 1898, and all communications will be cheerfully answered by the editor.

COPYRIGHT AND PHOTOGRAPH.

By James Eastus Price.

THERE is one place where the product of the photographer's art will find a more fitting setting for its beauty and excellence than can be found elsewhere in this great country of ours. This is the new Congressional Library Building, where Art, through the hands of genius, has lavished the perfection of her skill in adornment. Here the photographer, when desired, has his product looked after by the copyright department; and here the photograph itself is seen in most prolific variety.

The copyright law—which now protects for twenty-eight years, with a further extension of fourteen years after this period, obtained by recording a second time description or title, and complying with other regulations, as in the original copyright—began its operations as a national institution as early as 1790. At this date only the rights of type-printed matter were guaranteed; but in 1802 protection was extended to embrace the arts of designing, engravings, etchings, historical and other prints. In 1831 the law governing the present copyright time limit was passed, after which date music was included in its benefits. Dramatic compositions were next protected, and following this, in 1865, photographs and negatives were embraced in the copyright scheme, which is of so much importance to the protected and to the Library.

The latter, through the copyright department, receives much valuable matter, and not an inconsiderable amount of money. In Librarian Young's first report (for 1896–97) the cash income of this office is stated to have been $55,376, while the expenditures were $61,604.26. The law which governs the fees requires the payment of 50 cents for recording the title or description of any copyright of book or other article; the same amount for every copy under seal of such record given to the person claiming the copyright, or his assigns; $1 for recording and certifying any instrument of writing for the assignment of a copyright, and $1 for every copy of an assignment. For a person not a resident or citizen of the United States, the amount first mentioned, and for the same purpose, is made $1.

In the operations of the copyright department the photograph plays a most important part, for, besides being in itself an object of especial protection, it is taken at the Library as a copyright representative of paintings, drawings, statuary, models, or designs for much other fine art work. Therefore it will be seen that of necessity there should be a great accumulation of camera product in the Library, especially when it is known that in copyrighting a photograph, two copies of same must be sent to that place, to be mailed, if sender is at a distance from Washington, not later than the day of publication.

The number of photographs copyrighted since 1870, as given in the Librarian's report here mentioned, is 78,817; and the number given as now available for preservation and display in the graphic arts department is 33,256. This shows a great discrepancy, even though one-half of the income went to the copyright archives. This however, is partly accounted for by the Librarian, who says that entries were made from which copyrights were not taken out.

Perhaps the best idea concerning the accumulation of camera product in the Library can be gotten by a visit to the attic over the southeast wing of the building, which is reached by a long, spiral stairway that literally winds one up to the top story ; at least, you feel "wound up" after the tortuous climb. But one is amply repaid for effort made in this direction, not so much in the lofty view from the windows, from which the vision travels far over city, river, hill and valley, but in the treasures contained in a large room situated at the head of the stairs which have helped you up to the storehouse of art.

Here, sitting at a big table, is Mr. Roberts, getting the collections of photographs ready for cataloguing, while in various parts of the place are piled thousands of photographic specimens, from almost the smallest kind to those of the "blanket sheet" variety. Shelves, at the side of and extending the whole width of the room, are laden with these picture products, arranged in labeled piles, according to respective class, so that they can be conveniently gotten at ; for it is the plan of the head of the art department to make the collection a means of ready reference for all those who desire information contained therein.

There will, of course, be a large number of different subjects embraced in the arrangement. Under the heading, "Naval," will be battleships, armored cruisers, protected cruisers, cruisers, monitors, torpedo boats, and the whole White Squadron. The merchant marine classification will contain "liners," sailing vessels, river and lake craft and some others. Under "Yachts" are steam and sailing yachts, fleets, crews and yacht club-houses. "Industries" takes in mechanics of many kinds ; railroads, mining and lumber camps ; street cleaning, excavating, and all different types of machines. "Designs" embrace, among other things, cigar brands, curtain scenery, picture frames, silverware, chandeliers, lamps, festoons, fountains, monuments, hairdress, plaiting of hair, and unique designs in advertisements. Other classifications in the collection embrace seashore and open sea views, landscapes, public libraries, public buildings, and general architecture, religious and historical subjects and general figure work. In fact, the collection takes in pretty much the whole dominion of photography, which, when arranged in classes and sub-classes, will form a most valuable series of object-lessons.

Not the least charming feature of this work will be that which pertains to portraits, of which there is an exceedingly fine lot in the collection. These, also, will be divided into sub-classes, such as portraits of national presidents, including all those who have occupied that lofty position ; portraits of State senators and representatives, district courts and other State officials ; of representative divines of all denominations, church assemblies and council bodies, and those of poets, inventors, wives of presidents, colonial ladies of note, musicians, actors and actresses. Among the latter will be a series of Lotta, made thirty years ago.

A large number of stereoscopic views, from nearly every part of the world, form an interesting portion of the collection. As with the other camera product, these are to be classified according to subject, and will show foreign peoples, customs, costumes, buildings, etc. From this branch of the photographic treasure-house one should, without other picture assistance, get a good pictorial history of the world—realistic history "written" by the lens—which always tells the story of an "eyewitness."

The photographic collection contains many pictures, which even now are very rare, and, as time goes on, will increase in value. They are milestones along the path of time, which mark in object history the visible features of historic events. Not the least of these are some photographs of street scenes in Paris, taken during the commune insurrection of 1871, others of paintings of battle-fields during and after fights in our Civil War, naval battles during that period, and, like a voice speaking to us from the far distant past from the now bloody shores of Cuba, two which have to do with the discoverer of America.

One of the latter is a photograph of the casket which holds the ashes of Columbus, and, perhaps, contains also the chain that bound him when he was taken as a prisoner to Spain, for he kept this chain hanging in his cabinet, and requested that it should be buried with him. The casket has a square box-shaped body surmounted by a sharp gabled top, and looks in the picture much like a miniature barn. The other photograph is of the vault in the Havana cathedral, where the great navigator was laid after having been brought from Spain to San Domingo, and thence to the Queen of the Antilles.

Another photograph in the collection, which I will mention here, is one from a painting by Moran, which gives a view of New York Harbor, where are seen the ships at the funeral of John Ericsson, the inventor of the Monitor. The warship *Baltimore*, which conveyed the body of the dead inventor to his native land, is a conspicuous figure in the picture. An interesting coincidence suggested by this picture is in the fact that Ericsson's monitor turned the tide of battle in the Chesapeake, while the *Baltimore*, but comparatively recently also has at the Philippines assisted in adding glory to Uncle Sam's "power afloat."

It is part of the object of the graphic arts department to display from time to time in cases located in the south and southeast halls of the Library Building, photographs which have to do with important current affairs. The American-Spanish war caused the history exhibit to take on a decidedly belligerent aspect. The American navy is here represented in large photographs of all its principal steel-clad and protected floating power, with names of vessels, and, in many cases, with brief explanations attached. And to make the object lesson complete, a series of old wood-cuts—some very old, and without perspective—show obsolete warships, fairly bristling with cannon, engaged in furious conflict.

It should gladden the heart of the great singers and instrumental music-makers to know that when they appear professionally in Washington, their photographs will also appear in the beautiful music department of the world's most magnificent library building. In this (the music hall, devoted principally to musical compositions, of which the Library contains something over one hundred and eighty-seven thousand) are seen photographs of celebrated singers and instrumentalists adorning the walls, while lying on long tables are those which represent present date "holders of the boards." The pictures in the latter places will be continually changed to give place to succeeding "stars," whose forms and faces will be enshrined in the Temple of Art, while their music is delighting the Washington audience.

Another attractive feature of the picture display in the Library is that in the southwest gallery, in which are many photographs of our country's chief magistrates, and of a number of ladies and children who have had the White House for a home. Of course, there are no camera reproductions of George Washington, and those who succeeded him as presidents before the photograph began to make familiar the faces of great individuals, but there are to be seen in the exhibit numerous engravings of these, among which a valuable series of our first ruler, beginning with the old hero as an infant, follows him in picture-history to the end of the chapter.

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It is reported that Mr. D. L. Elmendorf is planning to undertake some photographic work in connection with the Cuban campaign; and if such is the case, those who are acquainted with his work in other fields will look forward with great expectations to what he may bring from the front.

Photograph by John Rösch.

ALL THERE?

DEVELOPMENT IN DAYLIGHT AFTER FIXING.

By Rev. F. C. Lambert.

MR. J. STERRY, a few days ago, read a paper before the Royal Photographic Society on the latent images, in which he showed that in photography, under ordinary conditions, we have not one, but two, latent images. These he calls the organic and the inorganic images. When development takes place before fixing it is probably the inorganic image which is chiefly concerned, and if development follows fixing, it is the organic image which is built up. The lecture was of a somewhat abstruse character, and those interested may be referred to the verbatim report, which will appear in the society's journal in due course. Meanwhile, we may just roughly summarize some of the points dealt with. The organic image appears to move *pari passu* with the inorganic image as regards the speed of the plate. The organic image may be developed with plates of various speed and kinds, *i. e.*, plates containing bromide, chloride, or iodide of silver and gelatine. The organic image shows the familiar phenomenon of reversal in an unmistakable way. Furthermore, the companion phenomenon of *re*-reversal, about which we have all heard, but so few have seen, is strongly indicated by proper treatment of the organic image. The following points more or less indicate the chief deductions drawn by Mr. Sterry from his investigations up to the present time: (1) The organic image may be due to an organic compound of gelatine with bromide, chloride or iodide of silver, or it may be the result of light on a haloid of silver dissolved in a solution of gelatine, or it may be the result of a salt of silver reduced by light, but not removed by the thiosulphate. (2) The fact that the organic image is developable seems to point to the light action bringing about a molecular change. (3) The halogen liberated by light action is a factor in development. (4) Reversal may be due to two more or less independent causes, *i. e.*, directly, by withdrawal of the halogen, or indirectly, by the antagonistic action of the liberated halogen upon the remaining undecomposed silver haloid. (5) Reversal is counteracted when the liberated can be returned, recombined.

Thus far are a few very brief and imperfect notes of a paper full of interest, which must be consulted *literatim*, with its accompanying diagrams and tabulations, to be adequately appreciated. And now for the precise details of one or two experiments tried along lines suggested by Mr. Sterry, which gave results so surprising that any one who will repeat them may count on getting results both curious and interesting and highly suggestive of further possibilities.

My experiments aimed to produce and develop the organic image, *i. e.*, to expose, fix, wash and then develop a dry plate. I selected a slow lantern plate of well-known brand, giving a speed reading of about 3 or 4 on the H. & D. system. This was put in contact, film to film, with an ordinary small negative in a common pressure printing frame—all being done so far in the darkroom ruby light. An exposure was given through the negative. Three inches of magnesium ribbon burnt at a distance of about 10–12 inches from the printing frame. The lantern plate was examined in the ruby light, but no image was visible. It was then passed at once into a 20 per cent. fixing bath of hypo. In about three minutes the film looked quite clear gelatine. It was left in this bath five minutes longer, and then washed in a gently running stream of water for about twenty minutes. As soon as the plate came out of the fixing bath the naked gas light was turned full on, and kept on to the end of the operations. The plate was now examined by reflected and transmitted light, but no trace of image was seen. It appeared to be only glass and quite clear transparent gelatine.

Next, for the developer, which, at a glance, will be recognized as a silver intensifier. My formula is substantially that of Mr. Wellington. In 2 ounces of water dissolve 100 grains of silver nitrate. Call this A. In 2 ounces of water dissolve 200 grains of ammonium sulpho cyanide. Call this B. Now add B to A gradually and shake frequently. A heavy white precipitate of silver sulpho cyanide is formed. Call this C.

Next, for the pyrogallic acid solution, which, in my case, happened to be what was on my shelf as my favorite formula. It is composed as follows:

Potassium meta bisulphite	200 grains.
Water (about)	6 ounces.

When dissolved, pour into an ounce bottle of pyro, add 100 grains of potassium bromide, filter into stock bottle, and make up to 8 ounces, with water *quantum sufficit*. Call this pyro mixture P. Lastly, make up a 20 per cent. solution of hypo by dissolving 1 ounce hypo in about 3 ounces of warm water and diluting till it measures 5 ounces. Call this H. Also make up a similar strength of strongest ammonia by diluting 1 liquid ounce with water until it measures 5 ounces. Call this Am. Now, to return to our plate, which has been washed from twenty minutes to half an hour. Shake up the bottle C, and take out 1 dram of contents, including some of the white precipitate. Dilute this with 1 dram of water. Mix and add drop by drop enough of H to just dissolve the precipitate. This, you will find, will probably take about thirty drops. Now add ten drops of P, and, lastly, five drops of Am. and pour this on the plate at once. It is quite essential that the dish be quite clean or the silver will be deposited on the dish and not on the image. Gently rock the plate, and be patient for a few minutes. For the first two or three minutes nothing seems to happen, but presently a slight image appears and then grows somewhat quickly. If the image does not begin to show signs of visible existence after say, five minutes, a few drops more of Am. may be added, but excess of Am. tends to turn the mixture muddy and throw down the silver anywhere and everywhere. When sufficient density is acquired rinse under the tap for a minute and dip into clean 20 per cent. hypo for a couple of minutes, wash well and dry. I have only had time to make some two or three experiments, but these show me that variations of color of image are possible with the same batch of plates. Those at first obtained were first a rather bright indian red, then a much browner color, more resembling chocolate. A couple of experiments were made with quick plates in the camera upon a block of buildings opposite my study window. The exposures were *f*/8, one-quarter second, and *f*/8, short three seconds, but in neither case did I get more than a very thin image, and it was of quite a different color. In this case it was very suggestive of something between the color of a collodion bath-plate before and after development. I have given the particulars of these little trials in somewhat extensive detail, because the idea of developing a plate that has been fixed, and doing this in strong actinic light, will probably come as a surprise to some and may be not very readily believed. Therefore, the details have been faithfully set forth in order that the skeptical ones may convince themselves by actual experiment that

> "There are more things in photography than are dreamt of in their philosophy."

THE GUM PRINT PROCESS.

By Florence.

(*Continued.*)

THE coating can be done in subdued daylight, the mixture having very little sensitiveness in a moist condition, but during drying it increases considerably. The paper has therefore to be dried in the dark, and all further manipulations with dry paper have to take place in yellow lamp light. The character of the picture must also be considered, when coating the paper, so that the coating for delicate pictures is somewhat thinner than for strong ones, and the sky in a landscape should be less thick than the foreground of the picture. But experience is the best teacher, particularly as applied to time of exposure and manner of developing.

The prepared paper does not keep very long, generally only a few days, but paper eight days old may furnish some satisfactory results under certain circumstances, and if treated according to its conditions. For this reason, only so much paper should be prepared as is actually required for the next two or three days.

The negative used for printing should be thin, but clear in the shadows. The details, coming only very moderately into effect, are not so much to be sought as they are in prints made on the modern silver print papers. If properly printed, hard negatives may be successfully worked, while foggy and monotonous negatives give no satisfactory results. If foggy negatives have been developed pretty dense, they may be made useful for the process by reducing them so much that the fog disappears, and, if they are too thin, they are intensified. If negatives are specially made for the gum print, the plate should be exposed normally and the negative should be developed soft, and not too dense. In that way it will meet all requirements.

Two methods are distinguished in exposure, namely, the exposure from the film side, and that from the paper side.

The first way seems to be most generally applied, as it requires no reversed negatives. But the exposure from the paper side gives much finer results, which is not to be wondered at, as in this case the development proceeds entirely after the same principle, as in carbon printing with transfer A smooth paper can be employed for this when an even and uniform result is desired, but for very thick and heavy grained paper, as preferably used for larger sizes, the printing from the film side may be more highly recommended. For the production of gum-three-color print pictures the printing should likewise proceed from the film side, as here not only one, but three colored films come into consideration.

The exposure of the paper is, as already referred to, of great importance. Being not directly visible in its action, but producing only a latent picture, it has to take place under certain fixed conditions, if expectations are to be crowned with success.

When printing from the film side it is, therefore, recommended to take a soft negative, while for printing from the paper side a harder negative, richer in contrast, has proven to be the best. The determination of the duration of exposure is a matter of experience. Henneberg says, that if correctly exposed, the light should appear after half an hour's soaking.

The simplest way for the printer is to apply a photometer of the ordinary style, making a note of the several printing degrees. In this way he will easily learn how to judge approximately the correct time of exposure. Demachy–Maskell says, that in good light in winter a thin negative requires an exposure of an hour, denser negatives correspondingly more. When printing through paper a much longer time is of course required than if printed from the film side.

The communication of the artist-painter O. F. Walter, in Altona, is interesting, according to which by prolongation of the printing process to double and treble the usual time necessary to the realization of a good print, a reversed (negative) picture is obtained, so that from a positive (steel engraving, etc.) a positive picture can be obtained again without the use of a negative.

But the method of developing is also of considerable influence upon the printing qualities obtainable.

If the developing is done with warm water or with sawdust, the printing time can be more extended than for prints developed only in cold water. The thickness of the film and the structure of the paper, and eventually the coloration of the pigment, are also to be considered in printing.

Blue and green colors require less printing time than black, while brown requires the longest time of exposure ; the latter are, therefore, printed best in direct sunlight. It is always better to print a little longer than actually necessary, overprinting being easily compensated by energetic development, while in all under exposures the picture is lost irretrievably.

For developing, the paper is placed in pure water of ordinary room temperature. After about five minutes the water is poured off and replaced by a fresh supply. The paper can be placed film side up or down. The film being easily injured in a wet condition, the former method seems to be the safest. There is, however, a third way to proceed, which is particularly to be commended, when the brush is intended to be employed.

For development with the brush, the paper is soaked in water and is laid with the paper side upon a glass plate, which is placed slanting in a tray. To develop, water is now poured upon the picture, which develops gradually. With this method, some parts of the picture can be developed stronger if desired, or with warmer water, or by application of the brush. The water, however, must not fall directly upon the picture, but should touch the edge of the glass plate first, from which it will then run over the picture.

The brush acts very energetically, and should, therefore, be employed only with the greatest care, where the printing was correspondingly strong. If the printing was done from the reversed side, the brush can be employed to greater advantage, as the action is not so vigorous as if printed from the film side.

When, where and how the brush is to enter into the work it is difficult to say, and requires definite knowledge of its action for success. It is generally suitable for working in the shadows, and should be managed with care and consideration. Sawdust has also a strong action and is employed in developing after strong printing.

The developed picture is suspended, and so left to dry.

After complete drying, the picture, which in moist condition is easily injured, becomes hard and tough, and this capacity of resistance lasts even after the paper has been moistened again. This circumstance has been made use of, to execute combination prints in monochrome and in different colors. The latter process, particularly the so-called three-color gum print, seems to be of general interest.

The simple combination print finds an extended application, particularly for land and seascapes. Here, the picture is first printed without sky. After it has become dry, the part of the picture representing the sky is coated with color and printed with a suitable cloud negative. The color is kept quite thin, and is printed in such a way, that by corresponding development a characteristic sky with clouds is obtained. This method is for many artistic effects of great value.

(*To be continued.*)

Translated by Henry Dietrich.

Photograph by John Rösch.

A BOX AT THE OPERA.

TRIMMING AND MOUNTING PHOTOGRAPHS.

(Concluded.)

"IN cutting down in this way, it must be observed that it is possible to go too far, and produce the effect of overcrowding. I have seen what was described as 'a portrait,' which was so cut away that only the face was left. I concluded that the operator was not very accomplished in print-trimming, and had had to keep cutting away because he was not able to cut true. Knives will jag. I have also seen portraits of which the feet had been cut away at the toes. Perhaps the person portrayed had very large feet. Such cutting down cannot possibly be of any use, and can only disturb the effect of the subjects pictured.

"A case of over-trimming which is very much seen, and which, while not so evident, is none the less to be discountenanced, is the case in which some beautifully rounded cloud forms are cut down from the top in such a manner that the symmetry of the line is broken. Thus, a line which carries the eye upwards to the summit of a beautiful floating mountain of cloud, and which would ultimately lead the eye gently and insensibly back into the picture, is arrested by coming into contact with the upper margin of the picture. The same also applies to the cutting off of the tops of trees in a like manner, and which should also be avoided, unless the trees are very large.

"There is one great point which must be observed, no matter what else may suffer thereby, and that is, no trimming must be done which will interfere with the balance of the picture. The balance and support of everything depicted must be maintained at all costs. Thus, an arch, no matter of what description, whether it be a door, window or bridge, must not be trimmed off in such a manner that it is left without something to support it. It is better to cut through the center of the pier or along the doorpost, as by so doing the support of the arch is shown. The same sometimes applies to trees when situated near the margin of the print. It is all very well to say the imagination will supply the deficiency, but no amount of imagination will counteract the feeling of weakness and instability which the neglect of this rule admits.

"It will be seen from the foregoing remarks that two great points must be borne in mind when shaping our pictures, previous to placing them upon their final supports. The first is, that the print is so trimmed as will best center the interest upon the chief object, and find undisturbed pleasure in the perusal thereof; and the second is, that in conjunction with this the balance and harmony of the whole is adjusted and maintained. No sense of overcrowding must be felt, and, if trimming can do it, all objects which are not requisite to the subject pictured should be removed. I have frequently met with pictures that would be vastly improved were they cut in half and made two pictures of.

"There is no more irritating thing than to see a picture wherein the interest is divided between two subjects; where the eye is left in doubt as to which it is expected to regard as the predominant object. It is better to produce two perfect pictures, though small ones, than to make one combined larger, but more disconnected and uncertain thing, which seems divided against itself.

"There is one point I have not yet touched upon. I have sometimes been asked which is the better to produce, an upright or an oblong picture? Now, this is only to be answered after first seeing the material with which the proposed picture is to be built. This, however, can be borne in mind: A horizontal shape gives breadth and great stability, while an upright form tends to majestic appearance and atmospheric effect. It is, however, very difficult to prearrange the shape the picture is to be, and it is better not to be bound to a definite form, but rather to make the dimensions those which will best carry out the artistic qualities of the conception.

"I think it will now be seen that too much consideration cannot be given to the shaping up of the print, it being so very important that the picture be presented in its best form, if the fullest amount of pleasure is to be derived from the viewing of it. I have not, of course, by any means exhausted the subject, but I trust sufficient has been said to insure more pleasing productions in the future. It now remains for me to say a few words regarding mounting.

"A precious gem, no matter how well it is cut and polished, loses its apparent quality if it is not handsomely set and suitably mounted. Now, the mount is to the picture what the setting is to the gem. It is, therefore, required that great attention be given to this subject, for, no matter how well a picture is composed and finished, it will not show to advantage, and may appear to its detriment, upon an unsuitable mount. I am not going to speak upon technical details, because perfection in manipulation is, of course, necessary in all photographic work; but upon the artistic side of the question I feel that we are not sufficiently well educated, and that often we submit work which is of the worst possible taste.

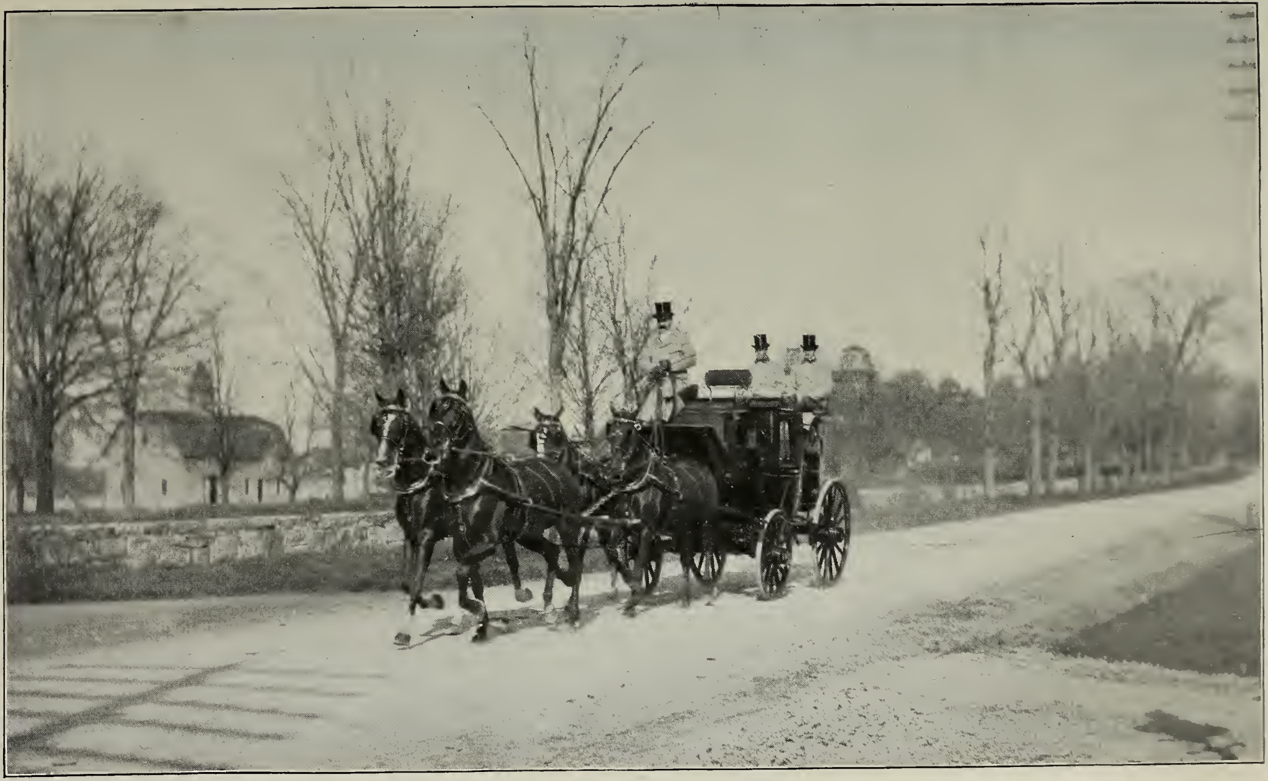
"Before we proceed to the operation of mounting, we must first decide an important and often neglected point. We must first of all answer the question as to whether our work is to be looked at simply as a picture—a thing to be regarded for itself alone, or whether it is to be part of the decorative scheme of the wall upon which it is to be hung. This, at first, seems an unimportant point, but it is really a very great question. It means that, if it is to be considered a picture, its surroundings must be adapted to suit it the best; but if, on the other hand, it is to be looked on as a decorative effect, then it must itself be constructed to harmonize with its surroundings. In either case the mount, together with its frame, must be made the connecting link between the two. I think you will agree with me that if the mounting was always looked upon in this light, some very different results would be presented to the world.

"Of the ordinary professional cabinet mount I have nothing to say, as, at best, it is only a vehicle on which to carry the print until it is placed in the album or other receptacle; but all other work requires a great deal of consideration. At the commencement must be decided the size of mount to be employed. This, though largely a matter of taste, must be selected with discretion. It must be remembered that, if the picture contains a mass of small work, or does not contain large masses of light and shade broadly displayed, a very large mount will cause it to look very insignificant. On the other hand, the larger the mount the less the eye is troubled with the wall around it, but a large mount tends to give prominence to the margins of the print. Should the work contain small masses of light and shade, or is weak in construction, a narrow mount will be found the most in keeping. I do not, however, advise the extreme in either direction, as I consider both to be only evidences of affectation.

"I suppose this is the best moment to discuss the merits of the mount as regards width of margin. If decorative effect has not to be considered, it will be found that its effect upon the picture is very considerable. Where the picture very much approaches the equilateral rectangular form, the addition of a little extra width of mount at the ends, or at the top and bottom, will increase the apparent length or width of the picture. In all cases the increased size of the mount should be in keeping with the dimensions of the print. Thus, if the picture is longer than wide the largest portion of the mount should be at the ends, and, of course, the reverse applies to it when the greatest dimension of the picture is from top to bottom. I think, however, that, in general, it will be found to be the most pleasing and artistic to give equal width at top and sides, whilst the bottom should be half as wide again as either the top or side. Of course, where decorative effect is only aimed at, a much greater license can be taken.

"The depth of tone and the color of mounts is a very important consideration, either in pictorial or in decorative appearance.

"It will be found that both in theory and in practice that depth of tone which comes about midway between the highest lights and the deepest shadows in the picture will give the greatest value to the whole effect; but it will be evident to every person that considerable power is herein placed in the artist's hands, for, where it is desired to emphasize any particular note of half-tone, the depth of the mount will greatly assist in so doing.



Photograph by JOHN RÖSCH.

STUDY IN SHUTTER WORK.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

"I can, however, only just call this fact to mind, as time will not suffice to lay the whole subject before you to-night.

"As for color, a very great deal might be said, for it plays a most important part in the decorative scheme, whilst in pictorial effect the result is none the less seen.

"For decorative work great range of color is available; but, if the color chosen is not of the same hue as the picture, it should be complementary to it, or of such a tint as will produce the best harmony between the picture and the wall. Thus, to give an example: Suppose the picture chosen is in red-chalk carbon, and it is to hang upon a wall whose predominating hue is green. I should mount the picture on a buff-colored mount, unless I desired to emphasize the color of the print, in which case I should choose a green mount of such a tone as would produce the effect without making itself too prominent.

"A perfect knowledge of color harmony is requisite in mounting pictures for decorative purposes, and on this point I do not wish to act as an authority. In mounting for pictorial effect, white, toned or gray are tints which are safe to use, and have each their special advantages. If the print has a tendency to hardness, it should only be mounted on a pure white board, because a toned mount has the effect of cooling the whites of the picture, which increases the apparent hardness. It will, therefore, be properly inferred that a toned board will best suit a somewhat weak print; also, a deeply toned board is good to use with a print whose whites are yellowed with age.

"Of the gray board much may be said, since, if the proper depth is chosen, the picture is sure to be shown to the greatest advantage. The depth of tone should be that which is just below the highest lights in the print. I do not care, as a rule, for dark gray mounts, but the kind I have described are really useful and serviceable. All other mounts of glaring and gaudy colors, and all fancy and superabundantly ornamental mounts, are to be avoided for pictorial effect. They only succeed in ruining the appearance of the picture, and may be taken as evidence of a painful want of good taste and artistic refinement. The results of some of these experiments have been shown during the past, and, as experiments only, all well and good, but I do hope that some of these experiments will not be performed again—at least in public. One time of day it was a very frequent thing to bind the edges of the cut-out mount with gold. This, for decorative effect, may be all very well, but, as a rule, it will be found that the plain edge is much more effective and artistic. Where a gold edge is desirable, it is much better, although more expensive, to have it gilded with gold leaf. It may be necessary, and is sometimes very beneficial, to tone down the whiteness of the edge with a wash of color in cases where the intensity of the edge clashes with the lights of the picture.

"There is one kind of mount which is very much in vogue at the present day. It is a very effective and refined style of mounting, and is very superior in appearance, but it is not compatible with artistic taste. I refer to the plate-sunk india-tint mount, and my remarks anent its artistic qualities may cause some surprise, but I think I can clearly show that what I say is true. The plate-sunk india-tint mount does not belong to photography at all, but is the acknowledged property of the engraver. The tint he has invented himself, and the plate mark is inseparable from the process of printing. It is practically a defect in the technicalities of his work, but his artistic instinct has led him to take advantage of the defect and turn it to true artistic account. Sometimes the water-color artist has availed himself of the tint, but never to my knowledge has he used the plate mark in any of his productions. And why? Because the plate impressing does not enter into any of his proceedings. It is for this reason that it is entirely out of place in a photograph, for in no part of the work is a plate used in such a way as to cause an impression. It is meaningless, and, therefore, inartistic.

"It may be urged, if the water-color artist may use the tint judiciously, so may the photographer. Just so; but it must be remembered that, when a painting is made on it, the color of the tint pervades the whole picture, as in an engraving, and the tint produces a mellowness of effect which is very pleasing; but in the photograph the tint is only round the edge, and, therefore, at best, is only a weak imitation of an engraving. If this tint is necessary, a toned board should be used instead. I do not feel that photographers are justified in trying to emulate the work of other artists who make a specialty of other branches of art. Surely a photograph in itself is a most beautiful thing, and I see no reason why the fact that it is a photograph should be disguised. Therefore, any attempt at imitation is undoubtedly weak and degrading.

"It is such practices as this which lower our art in the eyes of painter artists, and bring ridicule from all who profess good taste. Rather let us emphasize the fact that our pictures are photographs, and then the beauty which they possess will receive the recognition which they deserve. A pale gray mount, with a white paste-down center, is a very effective form of mounting if the picture is made on white paper. It is truly a photographic mount, and I do not think it has ever been used for any other purpose. In using this mount some regard must be given to the general character of the print, for, if it is rather a dark subject, the white paste-down becomes very aggressive in appearance. With such a description of print the white paste-down should be very narrow; almost, in some cases, to a single line in width.

"A great improvement would be to have the paste-down of such a tint that it would be just off a pure white, so that, when the picture is laid on it, the whites would appear just a trifle brighter than the paste-down itself. A gray mount with a white Oxford line, and about ½ inch from it, makes an exceedingly effective finish, and is quite permissible. On a white or toned mount the line should be very pale. As a rule, these lines are made much too strong for good taste.

"I have not spoken of veneered or of gold mounts, as these are really only extensions of the frame, and must be treated only as such. There is one more subject which I must speak of before I conclude, and in a somewhat feeling manner, as it is a very personal affair, and one which must apply itself to everybody. I refer to the signing of names upon the print or mount.

"There are some workers who are evidently impressed with the idea that the most important object in the picture is their own especial signature. They write it big, in a flourishing style, sometimes in red or white letters across the corner of the print. When you look at the picture the first thing that catches your eye is Murillo Fitz-Jones, or whatever the name may be. The eye travels thence to—Murillo Fitz-Jones, and, after being excited and dismayed, hypnotized and enthralled with the all-important and self-asserting cognomen, desires to see something more of the picture, but an irresistible spell seems to hold it back, until, by the triumphant power of mind over matter, it tears itself away, and, with one bold master-stroke, looks with doubtful satisfaction upon the principal object—Murillo Fitz-Jones. Further comment is needless, and I do not think I have very much exaggerated the matter, for I have seen frequently pictures with their makers' names thus boldly written upon them. Of course, I do not say that they should not be signed, but it is a difficult matter to settle.

"The Japanese, with all their beautiful art productions, are mostly content to let their work go forth into the world without so much as a single letter of authority upon them. They are a very modest people. But I think a man should not be ashamed to own up to his work, and to stand by its merits, but it is only a sign of self-conceit and arrogance to sign a print in such a manner that whenever it is looked at, the name must be read. No! Modesty in art is above all things to be esteemed, and is a most pleasing trait in many of the greatest artists of the day. The name should undoubtedly appear, and it is better either to write it small and pale in the same color as the picture itself at any suitable place thereon, or, better still, in pencil, in the artist's own handwriting, lightly written upon the mount."

* * *

All copy for July issue must be in our hands by June 15th.

PHOTOMETERS, ACTINOMETERS, EXPOSURE METERS, EXPOSURE TABLES, ETC.*

By George Fernau.

AT the beginning of my amateur photographic career I was not slow to perceive, as every tyro does, that good photography is the offspring of right exposure, and, indeed, photography is impossible without such accuracy.

How I envied other " camerists " in the field when I saw them majestically uncapping their lenses, and I took it for granted the image taken was unerring! I took it all as gospel at first, but when I gradually noticed that my superiors, the professionals, often exposed three plates on the same subject, not only in the field, but also in their studios, I began suspecting they were not so omniscient, after all.

Well, I went on plodding and plodding myself, sometimes a little too proud of a partial success, but, honestly speaking, I am now under the impression that the more experience I gained, or rather the more work I did, the less I knew. I would, however, not be beaten, and, bent on mastering the subject, read fifty articles on the mysteries of exposure, bought no end of photometers, actinometers, exposure meters, and all sorts of exposure tables, but all to arrive at an unsatisfactory result, in the sense that I wanted certainties, not approximations. At times, under fair conditions of light, the meters and rules of the meters proved correct. At other times, too frequent, I must confess, under different conditions of light, the instruments on which I had pinned my faith turned out false friends, although I had done all I could to secure their good-will.

So, slowly, imperceptibly, I commenced, like many others, believing a little less in meters, and a little more in myself, when one day, in a photographic tour with a Scotch friend of mine, who had always expressed himself a strict adept of the rule of thumb, and always swore to the uselessness of a scientific guide in exposures, I saw my Scotchman looking, almost by stealth, at what I mistook for a watch, but ultimately turned out to be the philosopher's stone I was longing for. I took, there and then, the address of the maker, and ordered the new desideratum at once.

Blessed be the day when I became the happy possessor of Wynne's Infallible Exposure Meter! All has been sunshine in my photographic work for more than a year that the little instrument has been as permanent a companion in my pocket as it has been an infallible guide to infallible good negatives. I think the word " infallible " has never been better bestowed.

Invaluable as the meter is for prolonged exposures, it is more so even for instantaneous work in connection with a judicious choice of the diaphragm, the speed of the shutter, and the conditions of the light illuminating the subject to be photographed.

Not only have I been able to undeniably establish the fact of the unerring accuracy of the meter, but also to witness and realize in many cases that the conditions and changes of light set at defiance the sagacity and the calculating power of the most practiced operator in its valuations.

These would already be fair titles in favor of the little instrument, but I will add, that it has usefully served me to compare between one and another, and gauge sundry sources of light.

Now, as to comparing the different makes of photometers and different tables of exposure, let me say a few words about those that I know, beginning with Wynne's instrument.

The latter allows one to exactly ascertain the photographic value of the light bearing on the subject intended for reproduction, and to strictly estimate, without calculation, the time of exposure required for obtaining a good negative on any brand of plate, with any diaphragm, without hesitation, and the possibility of the slightest mistake or error of judgment in the valuation itself or the elements of investigation on which it rests.

In the former, namely, in all the other methods of exposure with which I am familiar, whether they are derived from averages, mathematically calculated, or consist in observing the disappearance of a luminous point through a ground-glass or on the to-be-photographed subject itself, the elements of investigation are so uncertain, so precarious, that two or three operators, every one of them using simultaneously the same instrument, will invariably arrive at different valuations. This experiment I have often tried myself, with one or two assistants, and we never could agree.

**British Journal Almanac*, 1898.

In the first case, as regards tables, it is necessary, indeed, to subordinate the valuation of the time of exposure to the month of the year, to the hour of the day, to discern between a clear atmosphere, a gray atmosphere, a foggy atmosphere, a gloomy atmosphere, a limpid sunshine, a cloudy sunshine, and, finally, you must even know how to appreciate the clearness of the air in relation to the wind, as set forth in your meteorological article of March 5 ultimo.

Imagine, therefore, a poor photographer with his apparatus ready for exposure, and, more especially, a hand-camera man, obliged to go into the depth of all these calculations, which in their aggregate amount to more than ten thousand, and yet he must be correct. Not even the Italian shepherd that I knew in my youth, who could solve the most complicated problems of algebra without the use of logarithms, would have been up to the mark.

In the second case, the dwindling away of the luminous point depends mainly on the opacity existing between the eye and the instrument, on the distance between both, and on the duration of the observation, for our retina dilates in darkness, and notices objects which it did not at first There is, moreover, to be borne in mind that, in either of these methods, not sufficient account is taken of one of the most important factors in exposures, viz., the sensitiveness of any plate to be used, a sensitiveness which ought to be carefully analyzed beforehand, and well known by the operators.

Wynne's exposure meter, in its simple and ingenious, yet scientific, form, provides for all and every exposure difficulty that may arise, and I think that the inventor is right in asserting that it works well, and from the Poles to the Equator, from sunrise to sunset, from brilliant sunshine to fog, for instantaneous or prolonged time exposures, for open landscapes or dense woodlands, for photographic studio or dimly lighted interiors, for copying or enlarging, for the most rapid or the slowest plate, and with all diaphragms, from the largest to the smallest. In my experience of the instrument, I have, however, noticed two defects; one is mechanical; the rotatory did not always move smoothly; but this hitch, when it occurs, is easily overcome by moistening slightly the glass or the fingers, when, with a little pressure, the rotation will be restored. The other occasional defect is chemical, inasmuch as the sensitized paper is somewhat prone to become moistened, especially in winter, and, more especially, still, in summer, when, with a perspiring body, the case is inadvertently placed in the pocket of one's waistcoat, instead of being left free play in a side pocket. But, fortunately, the paper thus moistened is not lost, and soon is restored to its normal properties by exposing the back part or the case to sunshine, or any other calorific source. All this will rarely happen, but may happen, and the remedy is at hand. I would consider it advisable, however, to be provided with two instruments, for the sake of comparison, and having always one ready that normally reaches the standard tint.

With such slight precautions, go you on, Mr. Amateur, with an elastic step, to your photographic journey, and be sure that with the right exposure that awaits you, and, afterwards, using a right developer, a good printing paper, and a good toning bath, you will as heartily praise the "little watch" as I do.

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DON'T forget that time, tide and the Convention will wait for no man, and if you intend to go with the BULLETIN party, you should communicate at once with the editor—591 Broadway.

BLUE AND GREEN TONING OF BROMIDE OF SILVER PICTURES.

By Dr. E. Vogel.

If pictures produced upon bromide of silver plates or paper are treated with solutions of oxide of iron salts or red prussiate of potassium, they will assume, by formation of Berlin blue, according to duration of action, a more or less intense blue color. This blue toning can be applied to advantage for many purposes, for instance, for the improvement of the tone of diapositives, which by erroneous exposure or development have accepted a disagreeable flat tone. These pictures, after having been a short while in the toning bath, will have a much better appearance and greater brilliancy. It is also very favorable for views with clouds and water, moonlight effects, etc.

It is immaterial what kind of oxide of iron salt is applied for the production of the toning bath, but it has to be free from oxydal salts. The ferrid oxalate proposed for this purpose is not to be recommended, because it cannot be had in a pure condition; the great sensitiveness of the ferrid oxalate is also disturbing, the solution decomposing very quickly in daylight. The double salts, like ammonia, soda, and potassium ferrid oxalate are better, can be obtained easier in market, and are also considerably less sensitive. I prefer the brown citrate ammonia oxide of iron.

As particularly suitable I have found the following toning bath, which in its composition has a great similarity with the well-known uranium intensifier. The glacial acetic acid addition, introduced by me, which is for the purpose of counteracting the hardening of the gelatine film by red prussiate of potassium or nitrate uranium, and without which the toning will proceed slowly and irregularly, has proven also of advantage in the blue toning bath.

The blue toning bath has the following composition:

Solution I.

Brown citrate ammonia oxide of iron..........	1 gram.*
Distilled water..................................	100 cubic centimeters.[1]

Solution II.

Red prussiate potassium......................	1 gram.
Distilled water..................................	100 cubic centimeters.[1]

Both solutions are durable if kept in the dark. It is of advantage to acidify the iron salts solution with a few drops of glacial acetic acid, to prevent the formation of basic salts.

For use mix:

Solution I..................................	50 cubic centimeters.[2]			
Glacial acetic acid........................	10	“	“	[3]
Solution II..................................	30	“	“	[4]

If pure chemicals are applied, only a greenish coloration will form when mixing the solution, but no precipitate. The formation of a precipitate points to the fact that the red prussiate of potassium or the iron solution which was applied has, by being exposed to light, changed by decomposition to yellow prussiate of potassium or iron oxydal respectively.

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* 1 gram = 15⅔ grains.

[1] = 3 ounces, 4 drams, 4 minims.

[2] = 1 “ 6 “ 5 “

[3] = 0 “ 2 “ 49 “

[4] = 1 “ 0 “ 27 “

The thoroughly fixed and well-washed diapositive or paper picture is toned in this bath, dry or wet. Every shade, from bluish black to intense blue, can be obtained, according to longer or shorter action of the toning bath. After toning, wash until the water has entirely lost its fatty appearance. By diluted ammonia, the blue color can be removed again.

A green tone can be produced by treating the positive first with uranium intensifier, and then, without previous washing, treating it with above blue intensifier.

More or less bluish green tones can be obtained by a longer action of the uranium intensifier or the blue intensifier.

The uranium intensifier can also be combined with the blue intensifier. Mix :

Nitrate uranium solution (1:100)	25	cubic	centimeters.	[5]
Citrate ammonia oxide of iron solution (1:100)	25	"	"	[5]
Glacial acetic acid	10	"	"	[3]
Red prussiate potassium solution (1:100)	50	"	"	[2]

This bath gives a malachite green color, and is applied the same as the red prussiate of potassium. If washed too long, the color will become blue. Translated by

HENRY DIETRICH.

THE DEVELOPMENT OF OPTICS DURING THE PRESENT CENTURY.

A LECTURE DELIVERED BY GEORGE LINDSAY JOHNSON, M.A., M.D., F.R.C.S., AT THE MANSION HOUSE, ON APRIL 21, 1898.

From The Optician and Photographic Trades Review.

THE dawn of optics lies in immemorial antiquity. As soon as man began to think he must have been struck by the fact that he was able to see, and light, which he naturally associated with the sun, moon and stars, must have seemed to him an impenetrable mystery. He noticed the colors of things around him—the flowers, the trees and the blue sky—the rosy tints accompanying the rising and setting sun and the many-colored rainbow, which he could only associate with divine manifestation. He saw his image in the water, and his staff seemed bent when he thrust it in the stream.

The earliest historical records furnish evidences of some optical knowledge. The long, straight passage in the great pyramid pointing towards the polar star formed a primitive transit instrument. The Greek philosophers theorized on light, and, had the library of Alexandria not been destroyed, we should, doubtless, know what optics were taught in the Agora and the Museum. The ancients seem to have believed that sight was due to something emitted from the eye which lit up the object. Euclid already was aware that light traveled in straight lines or rays. Lucretius (100 B. C.) propounded the theory of *simulacra*, which seems to have prevailed for a considerable time. According to him every object throws off an impalpable skin or *simulacrum*, having its form and color whereby we are not only able to see it, but also to dream of it. Lenses are said to be of great antiquity, but they were unknown to the Greeks and Romans, who, at an early date, however, made metal mirrors, not only plane, but also convex and concave. Pliny, at the commencement of our era, mentions mirrors made of glass, backed with lead and tin ; and Seneca, about the same time, discusses the similarity of the colors of the rainbow to those seen when sunlight is reflected by water spray or corrugated glass.

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[3] = 0 ounces, 4 drams, 4 minims.
[5] = 0 " 7 " 3 "
[2] = 1 " 6 " 5 "

During the middle ages science was pronounced profane knowledge in all Christian countries, but the Mahommedans devoted themselves assiduously to experimental inquiry, and made surprising discoveries in all branches. Among the brilliant intellects of this Mahommedan golden age, the colossal genius of Al Hazan, who lived in Spain in the 11th century, towers above all. He may fitly be called the father of optics. He found that light existed independently of the eye, discovered refraction, explained the mirage, made a simple microscope, found the relation of conjugate foci, and described the effect of lenses when placed before the eyes.

Two hundred years later spectacles were invented. According to Dr. Plott, the honor falls to our illustrious countryman, Roger Bacon. He was a diligent student of Al Hazan's works, and first applied his theories to spectacle-making in the year 1280. The invention is usually, however, ascribed to Silvanus Amatus, and the date given is 1285. On his tomb, in Florence, may be seen the inscription, typical of the time : "Here lies Silvanus Amatus, the inventor of spectacles—May God pardon his sins." Who can say whether these men knew of each other, or whether they worked independently. This great discovery, which has contributed to the happiness and comfort of millions of human beings, attracted considerable attention, and spectacles were made in a number of places ; but it took centuries before lenses were applied to any other purpose.

In 1560 a boy, only fifteen years of age, Battista Porta, in Naples, made a tiny hole in a shutter and noticed pictures of objects outside appearing on the wall of the darkened room. He had invented a camera obscura. Later on, he placed a convex lens in the aperture in the shutter, thus improving his camera, and further experiments led him very near to the discovery of the magic lantern. A knowledge of Al Hazan's works enabled him to account correctly for the phenomena he had discovered, and he was struck by the similarity between his camera and the eye.

In the beginning of the seventeenth century, a Dutch spectacle maker, Hans Lippershey, by fixing a lens at each end of a tube, constructed an instrument which made distant objects look larger and nearer. Galileo heard of this in Venice, then already since three centuries renowned for its glass factories, in which silvered glass mirrors were first made. By means of a piece of an old organ pipe, a convex objective and a concave eye-piece, he contrived to make a telescope which magnified eight times. With this wretched instrument, which could not even be adjusted, he scanned the heavens and made his startling discoveries. Kepler, by replacing the concave by a convex lens, constructed the first astronomical telescope, and obtained greater magnifying power. He also worked out Porta's comparison between the camera and the eye, and obtained a fairly accurate idea of the purpose of the retina and the optic nerve.

In 1621, Snellius, a Dutch mathematician, expounded the law of refraction, and his countryman, Drehelius, made the first compound microscope. About the same time a French philosopher, Descartes, discovered that color was an innate property of light, and that by means of a prism the colors of the rainbow could be reproduced.

But it was reserved to Isaac Newton, the greatest master-mind of his age, to crystallize into a scientific method that which had been done during the first half of the century. To describe Newton's work in optics and the convincing experiments he made would lead me far beyond the scope of this lecture. He constructed a reflecting telescope, by substituting a mirror for the receiving lens, thus removing the colored fringes, which Kepler had observed in objects seen through his telescope. He took Descartes' prism, determined the behavior of colored rays, and by means of a second prism collected them, so as to form the original beam of white light. Notwithstanding repeated experiment, however, he could not get rid of the colored fringes around objects seen through lenses, which led him to the conclusion that this could not be accomplished.

Contemporaneously with Newton, Bartolinus, a Danish physician, discovered the double refraction of light when seen through a crystal of Iceland spar. Newton examined this phenomenon, and called the altered condition of the rays polarization. The astronomers Roemer and Bradley, by independent methods, determined the velocity of light, and Huyghens, of the Hague, who greatly advanced the knowledge of refraction, first attributed light to wave vibrations in an all-present medium which he termed ether. Newton declined to accept this theory, being convinced that light was due to the emission of a continuous flow of infinitesimal particles of matter.

Newton's ideas prevailed for over a century, and the work he had done, more especially for the advancement of the mathematics of optics, so dazzled the minds of men, that very little progress was made during the eighteenth century. The only discovery to record is that made independently by Chester Hall of Essex, and Dolland of London, who found a method of correcting the colored fringes produced by lenses, with which Newton had battled in vain. They made so-called achromatic lenses by combining two lenses of different kinds of glass.

Thus, although at the beginning of the present century achromatic lenses were made, and reflecting telescopes of considerable power were constructed, the microscope was very primitive indeed ; spectacles were made with spherical glasses only, and for want of the necessary physiological knowledge, they were fitted in quite an empirical manner ; prisms and cameras were used as toys ; the large majority of our present optical appliances were unknown ; though sextants were used they were wanting in precision, and torch or coal beacons, or at best oil lamps with parabolic reflectors protected by a dome of glass, warned the mariner on his approach to land.

Before the seventeenth century, discoveries were made by a few isolated investigators ; gradually communications improved, and the work of the one assisted the other. In the present century the number of workers has steadily increased, and with them the number of scientific societies, each publishing its proceedings. Whenever a new idea is originated it is at once placed at the disposal of the scientific world—the thought of the one engendering thought in thousands of others. Every advance made in one science assists the other, and technology, active in all its branches, is constantly placing new or more perfected material at our disposal.

In the first year of this century Thomas Young, a native of Somersetshire, noticed that when two converging pencils of light were thrown on a screen in a darkroom, dark bands appeared where they overlapped. He and Fresnel, a celebrated French physicist, continued investigations as to this phenomenon, known as the interferance of light, and the outcome of their work resulted in Newton's emission theory being finally abandoned ; and the wave theory of light, first expounded by Huyghens, became at length established. The discovery of electricity, the advance in physics and mathematics led up to the work of Clark Maxwell, Rayleigh and Kelvin, who exhaustively analyzed the wave theory, so that we are now able to understand and explain from a far broader point of view, the causes of optical phenomena.

Brewster's explanation of binocular vision and his discovery of the stereoscope ; Max Schultze's researches on the minute structure of the eye and the introduction of the ophthalmoscope, together with Young and Fresnel's work, enabled Helmholtz with his medical training and mathematical mind, to write his "Physiological Optics" which in its turn afforded Donders and Landolt the material for elaborating the theory of the refraction and accommodation of the eye, and the scientific adaptation of glasses to vision.

In 1808 Malus, a French engineer officer, discovered that light could be polarized by reflection, Sir David Brewster determining the relation between reflection and polarization. Arago found that the blue of the sky was due to polarized light. Biot discovered two different kinds of quartz and a number of other substances now known as optically active, which cause the ray of polarized light to be turned to the right or the left ; and Faraday, in 1846, found that most transparent substances when brought within the action of a magnet acquire the power of similarly rotating the polarized ray. Nicol, by cementing two prisms of Iceland spar, succeeded in isolating one of the two polarized rays due to double refraction.

Polarizing apparatus constructed with Nicol's prisms and reflecting polarizers have greatly advanced our knowledge in mineralogy, and a polarizing instrument attached to a telescope has made us certain of the existence of ice and water on the planet Mars. Polarimeters for measuring the circular polarization are constantly used by chemists, and led Pasteur to one of his most brilliant discoveries.

Wollaston, in 1802, observed that the sun's spectrum produced by passing the light through a slit before it fell on the prism was not a simple band of color, but was crossed by a number of dark lines. Joseph Fraunhofer, the son of a Bavarian glazier, carefully examined and determined the position of these lines which bear his name. In 1822 Sir John Herschel first suggested that by reducing substances to incandescent gases in the flame, and, observing the effect of the light when passed through a prism, the bright bands seen could be used to determine the presence of minute quantities of the substance in question. Kirchhoff and Bunsen, making further researches regarding these colored bands, and comparing them with Fraunhofer's lines in the solar spectrum, found them to correspond in position. They thus established the science of spectrum analysis which has revealed the existence of new elementary bodies, and enabled astronomers to examine the constitution of the sun, stars and comets.

At the end of the 18th century Scheele, a Danish chemist, first noticed that light darkened chloride of silver. In 1800 Herschel found invisible heat rays at the red end of the spectrum, now known as infra-red rays, and a year later Ritter found chemically active, invisible rays beyond the violet end of the spectrum ; these are known as ultra-violet rays. Following on the researches of these men the first photographs were produced. Ultimately, in 1839, Daguerre, in France, and Talbot, in England, by focusing the image by means of Porta's camera, and finding out how to fix the pictures obtained, laid the foundation of photography. This has opened up a new field of research to the astronomer, led to a number of beautiful discoveries, and is daily gaining in importance and usefulness

The use of coal gas as an illuminant, the glass chimney of the oil lamp, the introduction of petroleum, the lime light, the electric arc and electric incandescent lamp, have placed at our disposal artificial sources of illumination far exceeding anything which could have been anticipated, and naturally gave a great impetus to optical research.

The improvements in the manufacture of glass, notably by Chance in England, and Schott in Jena, together with the discovery of the use of fluor spar, have enabled us to obtain specimens of widely different properties, without which we could not make lenses free from optical defects, and we owe to the mathematician, Gauss, a method by which the complicated calculation involved in tracing a ray of light through successive lens systems, is reduced to a simple formula.

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Astronomical telescopes with achromatic lenses were made in the latter half of the 18th century, so that telescopes have not undergone any material change during this century. The telescopes used to-day are far more perfect in construction, the mechanical contrivances are more delicate and numerous, the size of the lenses and the length of the instruments are continually increasing, but the principle underlying their construction always remains the same, and there is very little to record. The adaptation of the telescope to photographic purposes and the polarizing and spectroscopic apparatus, which are now inseparable adjuncts to the telescope, have enormously added to their usefulness, and to advance our knowledge of the sun and stars ; but these can hardly be deemed to constitute any advance in the telescope itself, although, of course, they have to be considered as great strides in the science of telescopy.

(*To be continued.*)

PROCESS WORK

LICHTDRUCK WITH BROMIDE OF SILVER GELATINE.

By R. Ed. Liesegang.

ATTENTION has repeatedly been called to the possibility of applying the relief, as sometimes shown by gelatine negatives for the Lichtdruck process.

The process would have extraordinary advantage, as compared with the bichromate gelatine process at present in use. It would reduce the working time to a considerable extent, and the Lichtdruck plate could be produced almost as quickly as an ordinary negative. The bichromate of gelatine plate which has very little durability, and each time before use has to be freshly prepared, would be replaced by a preparation that will keep for years.

But the experiments made in this direction have given no satisfactory results so far for practical purposes, even when the conditions have been exactly determined, under which a strong relief will form. This of course, refers to the development of a long-exposed plate with a mixture of pyro and carbonate of soda.

The cause of failure of these experiments is principally owing to the circumstance, that the plates have not the grain required for Lichtdruck.

I have succeeded in producing this grain, in every desired strength by moistening the plate with a strong aqueous solution of nitrate of calcium.

Such a solution, as described by me in the *Journal for Practical Dermatologie* in 1896, has the property of dissolving gelatine in a cold condition. If water is added to this gelatine solution, the gelatine will precipitate again, exactly as the chloride of silver from its solution of rhodan-ammonium, if the same is diluted with water.

In our different lichtdruck processes we, of course, do not go so far as to cause a dissolving of the gelatine film, but only to a strong swelling of the same. In this way the grain will form, which becomes so much stronger the more concentrated the solution of the nitrate of calcium is taken. This solution acts at the same time as moistening water; that is, it prevents the fat color at the swelled parts from being absorbed by the film.

The process is as follows:

Glass plates are prepared in the ordinary way with bromide of silver gelatine emulsion, and exposed under an ordinary negative in the printing frame ; or, if another size is required, the negative can be photographed in the camera. The development is made with :

Water	200 cubic centimeters.[1]
Carbonate of soda	10 grams.[2]

To which is added, before use, 0.5 gram pyrogallol. Fixing and washing is done thoroughly. If the plate is to be used for lichtdruck, coat with a solution of

Water	500 cubic centimeters.[3]
Nitrate of calcium	250 grams.[4]

and let it stand for half an hour. The superfluous moisture is then wiped off, and the plate is ready for rolling with the fatty color. The moistening with a solution of carbonate of lime is repeated from time to time.

Translated by
Henry Dietrich.

STRIPPING COLLODION AND GELATINE PLATES.

(From *The Practical Photographer.*)

The following is a good way of stripping a collodion plate. The dry negative is flowed over with a 3 per cent. solution of india rubber. Then when this solution is dry it is collodionized and again dried. The film is then cut with a sharp knife about a sixteenth of an inch from the edge, and a piece of wet paper, rather larger than the film, is laid over it, covered with a piece of india-rubber cloth. The whole is squeegeed carefully down with a roller squeegee, and then drawn off. In this way the negative is never torn. For a gelatine negative the following method is recommended: The negative is first washed for an hour in running water, and then put for five minutes in the following bath:

Commercial formalin	3½ ounces.
Glycerine	1½ drams.
Water	34 ounces.

After this bath the negative is dried, the edge of the film is cut round, and the plate placed in the following soda bath:

Soda	6½ drams.
Water	3½ ounces.

Without washing, the plate is transferred to a solution of

Hydrochloric acid	4 drams.
Water	3½ ounces.

The film comes off immediately and swims to the surface of the water. After a short washing in water, it is drawn upon the new support.

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[1] = 7 ounces 0 dram 20 minims.

[2] = 154⅖ grains.

[3] = 17 ounces.

[4] = 8 ounces 17 grains.

SOCIETIES

THE annual meeting of the California Club, held in the early part of April, showed a very interesting and active condition of affairs to exist in the Club, which claims the largest membership of any camera club in the United States.

The officers selected for the ensuing year are as follows: J. M. Erwin, President ; W. E. Goodrum, First Vice-President ; E. J. Dollard, Second Vice-President ; H. B. Hosmer, Secretary ; and E. G. Eisen, Treasurer.

THE annual election of the Camera Club connected with the Y. M. C. A. of Pawtucket, R. I., on May 4th, resulted in the election of J. H. Weaver, President ; S. H. Byron, Vice-President ; George A. Harrington, Secretary and Treasurer.

THE Photographic Society of Waterbury, Conn., held its annual election on April 4th, on which occasion O. A. Zitlatski was elected President ; L. W. Anderson, Vice-President; H. A. Hoadley, Treasurer; Hollyday Emory, Corresponding Secretary.

THE third annual exhibit of the Malden Y. M. C. A. Camera Club took place the latter part of April, and was of great interest and value from an artistic standpoint.

The officers for the ensuing year are President, J. Arthur Came ; Vice-President, Fred. G. Stetson ; Secretary, Ashley M. Hoyt.

AT the annual meeting of the Photographic Society of Philadelphia, held in its rooms April 13th, the following officers were elected : President, Robert S. Redfield ; Vice-President, Walter P. Stokes and George Vaux, Jr.; Secretary, Edmund Stirling ; Treasurer, Anthony W. Robinson.

The report of the Board of Directors showed a net gain in membership during the year of twenty-one, the total membership now being two hundred and twenty-three. The Treasurer's report showed a very gratifying state of affairs in the Society's finances, with a balance in the current funds, and in the addition to the permanent fund.

The Brockton Camera Club held its annual meeting on April 12th, electing the following officers for the next year: President, R. E. Brayton; Vice-President, A. L. Evans; Secretary, Edgar W. Farwell; Treasurer, C. L. Perry.

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The Toronto Camera Club at its annual meeting on April 27th elected the following officers: President, J. M. Eastwood; Vice-Presidents, A. H. Baker and W. White; Secretary, W. H. Edwards; Treasurer, George Lees.

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The Haverhill Camera Club held its first banquet and social on the evening of May 10th, electing the following officers for the year: W. H. Curtis, President; A. E. Collins, Secretary and Treasurer. This Club has been in existence only since early winter, but interest has rapidly increased, and a very satisfactory condition, both financial and otherwise, is reported.

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The Third Annual Exhibition of the Camera Club of the Boys' High School, Brooklyn, was held on the evening of May 6th, in the auditorium of the school. Over one hundred views were shown, selected from the work of the boys during the past year. The officers of the Club are: President, Howard C. Blackwen; Vice-President, Harry S. B. Wright; Treasurer, W. D. Campbell; Corresponding Secretary, Harry C. Turner.

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The Association Camera Club, of Cleveland, O., has reorganized with the following officers: President, W. L. Kenyon; Vice-President, A. J. Jaeki; Secretary and Treasurer, J. C. Bulkley.

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The Y. M. C. A. Camera Club, of Fitchburg, reports reorganizing, with the following officers: President, C. G. Pierce; Vice-President, Edwin A. Johnson; Secretary and Treasurer, J. Bruce Hough.

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The following new clubs are reported as having been formed, with officers as named:

The Victor Camera Club, of Victor, Colo., organized April 4th. President, Dr. M. A. Robinson; Secretary and Treasurer, Glen G. Latimer.

The Eatontown Camera Club, of Eatontown, N. J., organized April 12th. President, W. N. Kurtz: Vice-President, Joseph N. Wolcott; Secretary and Treasurer, H. A. Philips.

Y. M. C. A. Camera Club, of Lancaster, Pa., organized May 4th. President, M. Alva Zook; Vice-President, J. Harold Lyte; Secretary, John S. Cochran; Treasurer, N. W. Heidlebaugh.

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The Photographic Art Club, of San Francisco, is an organization of amateur and professional photographers, organized April 13th, with a large charter roll and many associate members. The Club will give lantern slide and photographic exhibitions each month, will establish a photograph exchange, inaugurate lectures, etc. The officers of the new association are: E. Rea, President; Oscar Maurer, Vice-President; James E. Haren, Treasurer; J. Vincent Lehigh, Secretary.

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THE eighth annual print exhibition of the Department of Photography of the Brooklyn Institute of Arts and Sciences, occurring in the latter part of April, was one of great interest, and productive of much good from the quality of work shown and the general interest manifested by the members of the Club.

The first prize was awarded to Frank A. Peret in Class A, Special, for group of portraits, and the second prize to Myers R. Jones for study of a girl's head. Alexander Black, Frank Squier and Henry Roseland were the judges.

The catalogue, which was a very tasty booklet of forty pages, listed over four hundred subjects, and was bountifully illustrated with halftone engravings.

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THE Chicago Society of Amateur Photographers gave an evening with pictures at the Art Institute on the evening of May 11th, which was largely attended and enjoyed by all present. The Society has recently issued a very attractive booklet, giving the constitution and by-laws of the Club, together with standing committees for the year and list of active members, by which it appears that Marshal Wait is President; Winfield S. Bosley, Vice-President; Frank F. Gaylord, Secretary, and Frank W. Smith, Treasurer.

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AN exhibition of prints by members of the New York Camera Club opened at the Club's new quarters, No. 3 West 29th street, on the 21st of May. Among the notable pictures shown were a number by Alfred Stieglitz, including, among others, "Scurrying Home," which recently won the championship of the world at the International Exhibit at Cardiff, Wales. Mr. William F. Fraser was represented by a number of pictures of night photography. Charles I. Berg, Mr. William Post and others were also in evidence with characteristic selections.

◆

THE recent movement of troops throughout the country, and the scenes incident thereto, have afforded innumerable opportunities for the use of the camera, and, as a result, a very large collection of military and naval views will be forthcoming in the near future. Camp Black, at Hempstead Plains, has probably furnished as much material as any one spot, and we understand that Mr. W. H. Fullerton, President of the Brooklyn Academy, has been specially active in this field.

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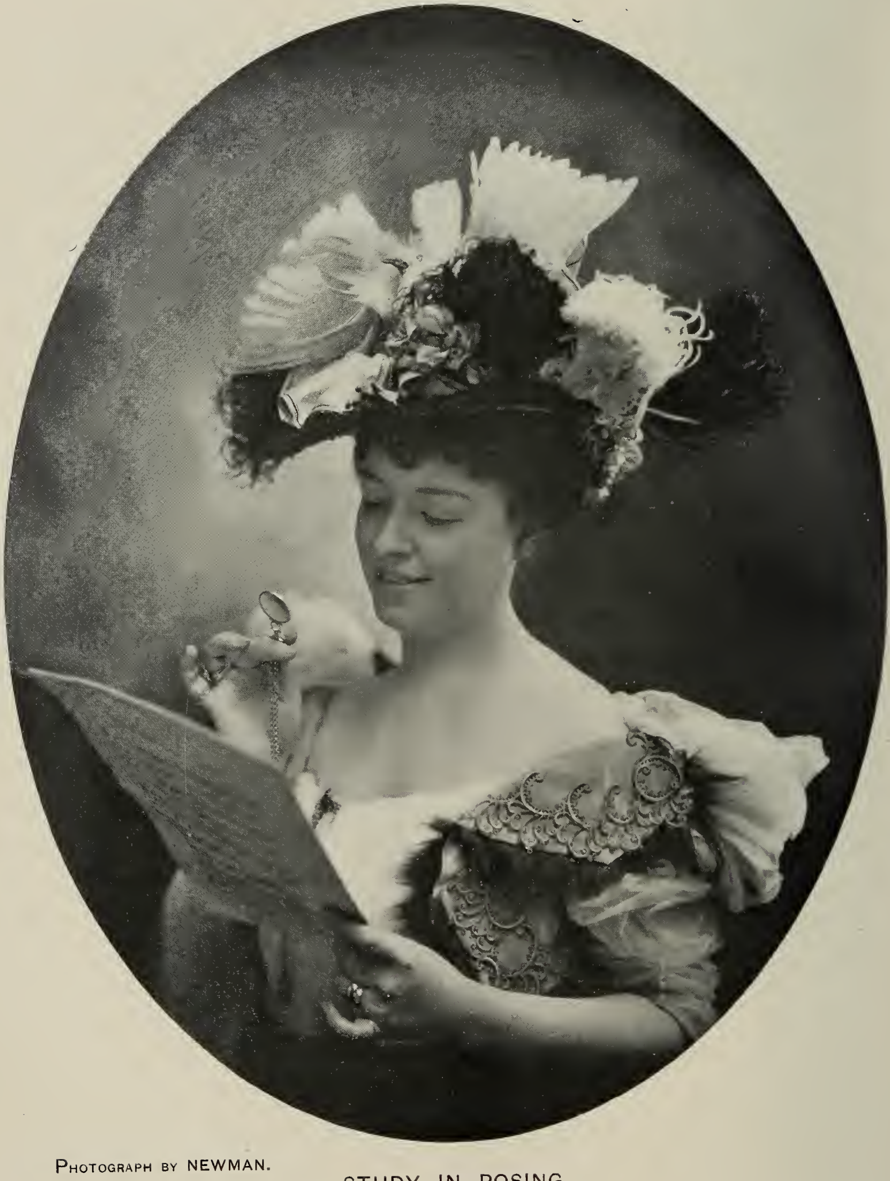

Photograph by NEWMAN.

STUDY IN POSING.

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.
W. I. SCANDLIN.

VOL. XXIX. JULY, 1898. NO. 7.

A PHOTOGRAPHER'S STOCK IN TRADE.

THE stock in trade of the photographer who represents a large class of the average workers of this country, consists in the cameras, lenses, backgrounds and various studio accessories in his establishment, many of which have done service since the days of long ago, which are used with the same intelligence and practically the same knowledge that went with them in the beginning, and which are replenished from time to time as one or another becomes too ancient for further use. With these same furnishings, he has perhaps handed down to posterity likenesses of two or more generations, and, as his business progresses year by year, he finds himself less able to meet successfully the newer methods and competition of newer and younger men in the profession, and gradually discovers that he is falling behind the procession in which he once occupied a leading place.

His work, he says, " Is just as good as ever it was," and, in fact, it is just the same that it was years gone by. Why, then, should not his custom keep up to the old mark ? Does it ever occur to him that the " world do move," and that in order to keep his relative position he must move too. Such is the case, and those who have to-day reached the higher places in the profession are the ones who have realized this fact, and, realizing it, have taken measures to keep up with the times, and bid for recognition. They have carried in their account of stock, an item which the first class have failed to recognize as a part of its legitimate stock in trade for the successful prosecution of photographic work.

This important item is within the reach of almost every photographer in this country to-day, and is being discovered and utilized to great advantage by many an one who, until lately, has been ignorant of, or indifferent to, its value. It should be entered up in the stock account under the heading " New Ideas," and it is to be found in an

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extension of one's experience among workers along the line of one's own labor. The various State conventions are invaluable to this end, and the National Convention even more so. Here the photographer meets his brother photographer, talks over the problems that interest or disturb him, listens to addresses and criticisms and demonstrations, sees the innovations that have been introduced during the year, and studies the work of his *confrères* on the walls of the art annex.

Can not the photographer of ordinary intelligence take back to his gallery new thoughts, new methods and valuable information enough to more than pay him in dollars and cents for the short time he is away from his work and for the cost of the trip?

If he is in business to make money, he certainly can, and, even if only in business for his health, the rest and novelty of the trip will refresh and strengthen him, and he will have better health and spirits than before.

In these days of progress and improvement in all lines and among all classes, it will not do to lag behind the procession. The art education of this great country is incomparably better, and the requirements of those who buy photographs immeasurably higher, than it was ten, or even five years ago, and, to cater to its wishes, the successful man must be stocked with new ideas, and they must be good ideas or they won't go.

All this and much more is given freely and without charge at the National Convention, and the man who goes there early and stays late with a desire to profit by his visit, will add to his stock in trade an item that will stand him in good stead through the coming year.

SPECIAL TRAIN.

ARRANGEMENTS have been made with the Erie Railroad to run a special train from Chicago to Chautauqua Lake, to carry the Chicago and Western photographers to the big Convention. The train will consist of vestibuled, sleeping, buffet and baggage cars—one of the best trains ever run over the Erie Railroad. It will leave Chicago July 10th, at 3 P. M., and is due to arrive at the Lake Monday, the 11th, at 7 A. M. The Chicago Chautauqua Club will have charge, and say they will give all who join their party a jolly good time. The Club has appointed its committees on transportation, badges, entertainment, etc., etc., and evidently intends to do just what it says. All western photographers who can go by the way of Chicago will do well to join this jolly party. The fare from Chicago to the Lake and return, is $12. Mr. John F. Decker, 45 East Randolph street, Chicago, is Secretary of the Club, and will be pleased to impart all desired information upon application.

The New York delegation will go under the auspices of the BULLETIN, leaving the Erie Depot, foot of Chambers street, at 7.30 Sunday evening, July 10th, reaching Jamestown Monday morning at 7. W. I. Scandlin, Editor of the BULLETIN, will accompany this party. Fare from New York and return, $12; double berth, $2.50, same as last year

Items of Interest

AT the studio of F. M. Somers, who succeeds Landy in Cincinnati, a very delightful exhibition of photographs, water-colors and ivory miniatures was given May 18th–28th, on which occasion a large number of photographs and art contributions by the most prominent men in the profession were viewed by many of Cincinnati's best people. Such movements as this cannot but tend to stimulate interest in the profession and elevate the tone of its productions throughout the country.

* * *

The Photographic Convention of the United Kingdom, to be held in Glasgow, Scotland, July 4th–9th, bids fair to be exceedingly attractive. The spacious galleries of the Royal Glasgow Institute of Fine Arts have been secured for the meeting, and a most attractive programme of excursions, lantern exhibitions and photographic trips has been planned. The members of the council include representatives from almost all the prominent clubs in the neighborhood of London, Liverpool and Glasgow. It will be noticed that the date of this meeting comes just ahead of our own convention at Celoron.

* * *

The Photographic News, in speaking of the tendency of gelatine plates to frill, admits that the trouble is not as often met with now-a-days as in former times, but that when it does come its presence is as objectionable as ever it was, and suggests that, while it may not be generally known, a very simple method exists for remedying and almost entirely preventing the trouble. This remedy is to be found in rubbing over the edges of the plate before development with a piece of paraffin candle. The paraffin being very repellent of water, protects the edges of the film and proves in most cases entirely efficacious. This is a good thing to remember as the hot weather approaches.

* * *

A very interesting demonstration of the theory laid down by Professor Russell has lately come to our notice in the unpacking of a large box of ferro prussiate paper, in which the lower sheets had been placed in direct contact with the board which formed the cover of the box, and on which paper, the knots and graining of the Georgia pine, which, as all know, is more or less saturated with turpentine, acting upon the ferro prussiate coating in the manner described by Professor Russell, served to make an excellent blue print of the texture and beautiful wavy grain of the wood itself; a point of special interest in connection therewith being that the fumes or actinic influence passed directly through one sheet, at least, of the heavy paper, and affected the next sheet to it very sensibly.

* * *

It is reported in the daily press that the City of Chicago has organized a photographic department in connection with the city work, and that the official photographer is kept busily employed, with a more or less considerable force of assistants, in making pictorial records of streets in and out of repair, scenes of accidents for which the city might be held accountable in money damages, views of interiors in crowded tenement districts, for use in the investigations of the Board of Health, and numerous other purposes which will readily suggest themselves to the mind of the reader. We believe this to be the first case where a city has instituted such a department. It would seem that the example might be followed to advantage by many other large cities of this and other countries.

* * *

M. J. Steffens, well known in photographic circles, is said to have invented a device for aerial photography by which objects 80 miles distant can be photographed. It is reported that negotiations are being carried on between Mr. Steffens and the War Department with reference to its trial and possible purchase by the Government.

* * *

If the Hawley bill for the punishment of persons photographing fortifications becomes a law, it will behoove some of our enthusiastic hand camera friends to use extreme caution in the selection of their subjects, as otherwise their instrument will be very likely to have a pronounced back-action, and the questionable pleasure of a snapshot will be found hardly commensurate with a long term of imprisonment.

* * *

The photograph has again made a record in astronomy by the discovery at the Lick Observatory, California, on the 11th of June, by Dr. Coddington, of a new comet, which is located in the constellation Scorpion, about 1 degree northeast of the bright star Antares.

* * *

It is quite probable that of all the recent discoveries and inventions, that which will be to humanity one of the greatest boons is the X ray as applied to surgery, and in the present war between Spain and our own country, it will, doubtless, be largely used. The apparatus as now made for field service is extremely small and portable, and its use in the field hospitals will, doubtless, save much suffering and many lives.

* * *

It has been a matter of considerable surprise and some comment that up to this time nothing has been heard of the application of aerial photograpqy to the discovery or investigation of conditions within the enemy's lines. Inasmuch as photography is so truly a part of the curriculum of naval and military students of the present time, it would seem as if some inherent defect existed, or it would before this have played a part in the settlement of the momentous questions that have confronted our navy during the last few weeks.

We are daily reminded of the value of the press, but never until lately has our admiration been so unbounded and our wonder at its imaginative power so great as on reading in one of our western dailies a short time since of a horrible accident to a photographer, "who, while looking at a flash-light picture, had his face severely burned and may lose his eyesight." We presume that the solution of this terrible accident is that a portion of the powder with which the view was originally illuminated must have permeated the coating of the plate and in the subsequent operations of development, fixing, washing, etc., have been perhaps intensified in power and subsequently transmitted to the paper upon which the picture that produced this explosion was printed. Truly, we live to learn.

Another very instructive (?) article in a paper published not far from New York City describes a method of deceiving the camera and reducing in size the otherwise over-large features of the subject to be photographed, in which case the operator is assisted by one who holds a reducing glass over the nose, mouth or whatever feature is to be made smaller, and the camera proceeds to take the portrait with the necessary reduction of the local part, and, of course, without taking note of the assistant's hand and the mounting of the glass which is held before the objectionable feature.

We congratulate our readers that the Convention is so near at hand when these matters may be more fully understood.

◆

The new plant of the Lovell Dry Plate Company, at New Rochelle, N. Y., is now completed and in full running order. The increase in popularity and sales of the Climax Plates during the past year has made the erection of a new plant absolutely necessary, as the old plant was wholly incapable of supplying the demand.

In making this change, the Lovell Dry Plate Company has increased its capacity over eight times, and the improved facilities will enable it to meet the demands for its products with promptness and with more uniform and better plates than ever.

We understand that the managers will in a short time have some new specialties to offer to the fraternity, which, we believe, will be greatly appreciated.

We congratulate the Company upon this progressive move, and predict for them increased prosperity. A full description of the new plant will appear in an early number of the Bulletin.

◆

Some announcements of interest to photographers are made in the August issue of *The Ladies' Home Journal*. Fifty-seven prizes, ranging from $5 to $100 for a single picture, and aggregating more than $700, are offered by the publishers of that magazine for photographs of pretty suburban houses, girls' rooms, summer piazzas or gardens of any sort. The competitions are open to everybody. Some close on September 1st; others, a month later. All the conditions have been made easy in order to encourage competitors, and it is stated that, after the fifty-seven prizes have been awarded, the *Journal* will pay good prices for such extra pictures as it may choose to use.

HAVE YOU BEEN TO CHAUTAUQUA?

IF so, we know you are going this year if you can get there. If you have not been we want to enthuse you. There is no lack of material. It is only a question of what will interest you. If you are tired of pictures, and want an outing, put on your old clothes, camp out by the Lake, dig grubs and go fishing. If you want to study, the exhibits are an unlimited field for the man who has eyes. Do you know that two hours' careful study each morning will do you a world of good? Take a note book with you. You can't carry it all in your head. You will find this useful, too, in the question-box discussions. Don't walk up and down the annex in a desultory manner thinking that the good points of what you see will photograph themselves upon your lazy brain. The man who excels in that exhibition did not get his information in that manner. Pick out a few of the exhibits that seem likely to give you the best returns, and spend an hour or two studying each one every day you are there. By the end of the week you will begin to see things. In the mean time, don't forget the school of photography. It has never been so well equipped for practical instruction as now. Don't be afraid of working too hard. The diversions will be sifted in. Your comfort has been provided for. Papa Cramer has promised a bountiful supply of red lemonade. If you can't find what you want in Celoron, Mr. Broadhead, President of the Celoron Amusement Company, would be glad to know of the fact, and he will see that it is forthcoming at once.

The railroad rates are the same as last year, viz., one and one-third fare, on the certificate plan, from all points east of Jamestown, and from points west one fare for round trip *via* the Erie lines and connections. Read carefully the instructions for purchasing tickets. Don't shake your head and mutter that there is no money in the business. What are you doing to make business? Better be prepared for the sitter that never comes than to have the sitter come and find you not prepared.

We hope to greet you in Celoron.

J. Will Kelmer, F. W. Guerin,
George W. Varney, George B. Sperry,
George H. Van Norman,
Executive Committee.

Instructions for Purchasing Tickets.

[Published by request of Executive Committee, Photographers' Association of America]

First.—Each person must purchase (not more than three days prior to the date of the meeting, Sunday not to be accounted a day, nor later than two days after the first day of the meeting) a first-class ticket to the place of meeting, for which he will pay the regular tariff fare of not less than 75 cents, and, upon request, the ticket agent will issue to him a standard certificate of such purchase, filled up and signed by said ticket agent.

Second.—If through tickets cannot be procured at the starting point, the person will purchase to the nearest point where such through tickets can be obtained, and there purchase through to place of meeting, requesting a standard certificate, properly filled out by the agent at the point where such purchase is made.

Third.—It is absolutely necessary that a certificate be procured, indicating that full fare of not less than 75 cents has been paid for the going journey. It likewise determines the route *via* which the ticket for return journey will be sold, and without it no reduction will be made, as the rule of the Association is that "no refund of fare can be expected because of failure of the parties to obtain certificates."

Fourth.—Tickets for the return journey will be sold by the ticket agents at the place of meeting, at one-third the first-class limited fare, only to those holding standard certificates, signed by the ticket agent at point where through ticket to the place of meeting was purchased, countersigned by the Clerk of the Convention, and vised by special agent of the Railway Association.

Fifth.—Certificates will not be honored, if presented for return tickets more than three days after the date of adjournment of the Convention. It is understood that Sunday will not be reckoned as one of the three days, either before the opening date or after the closing date of meeting.

Sixth.—The certificates are not transferable, and the signature affixed at the starting point, compared with the signature to the receipt, will enable the ticket agent to detect any attempted transfer. A transfer or misuse of certificate or tickets authorized under this rule will forfeit all privileges granted.

N. B.—Please read carefully the above instructions. Be particular to have the certificates properly filled and certified by the railroad agent from whom you purchase your going ticket to the place of meeting, as the reduction on return will apply only to the point at which such through ticket was purchased.

LIST OF HOTELS AND RATES.

The Greenhurst, P. O. Address, Jamestown, N. Y	$2 50
Kent House, Lakewood, N. Y	2 50
The Waldmere, Lakewood, N. Y	2 50
Saratoga Cottage, Lakewood, N. Y	1 50
The Cowing Cottage, Lakewood, N. Y	1 50
Humphrey House, Jamestown, N. Y	$2 00 to 3 00
Sherman House, Jamestown, N. Y	2 00 to 3 00
Everitt House, Jamestown, N. Y	1 50 to 2 00
Hayward House, Jamestown, N. Y	1 50

* * *

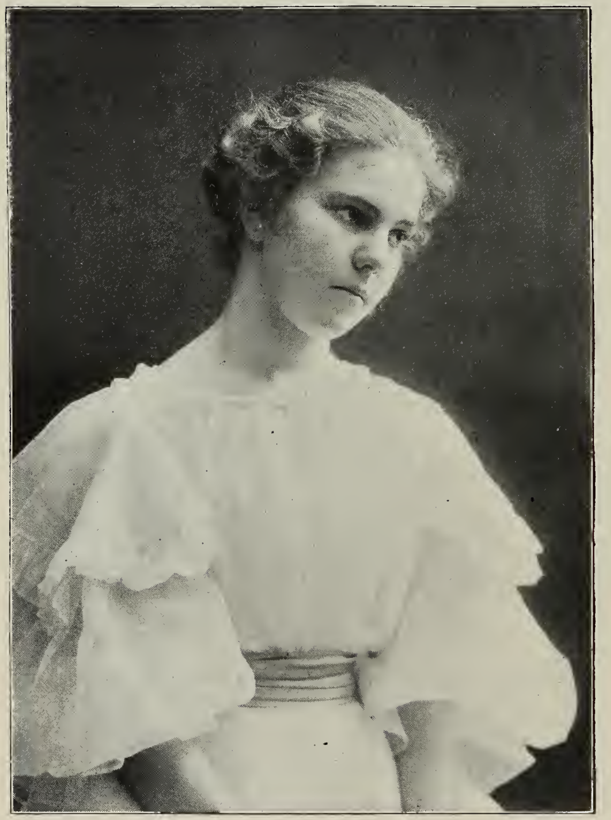
ALL mail and express matter should be sent to Jamestown. If delivery to the Convention Hall is desired, address all matter "care Photographers' Association of America Convention, Jamestown, N. Y."

There will be a private express office and post-office at the Convention Hall at Celoron, and all mail or express matter addressed as above will be delivered there.

THE PARTING OF THE WAYS.

By John A. Lorenz.

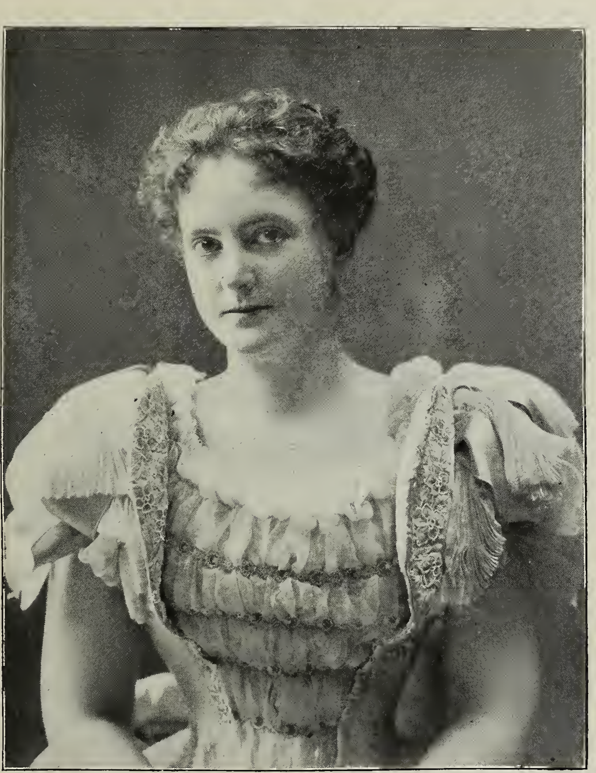
FROM childhood, full of enthusiasm for the works of the world's great portrait painters, I took up photography, and for years have devoted my life to making it conform to the rules of art. I have never wasted any time on the useless discussion as to whether photography is an art or not, and have never seen any one come to the heart of the subject, which is this: Art is the result of an artist's work—it presupposes the existence of an artist.



Photograph by J. A. Lorenz.

Now an artist works on certain rules — principles founded on truth and Nature; instantly my photographer friend tells me that artists differ, to which I readily agree. All who understand a subject are at liberty to differ as to the way they shall present that subject, and no matter how greatly they may differ, all labor to present the truth, each one telling it in his own way, which is a vastly different matter from the photographer's claim of art for his work without understanding the least of the principles on which an artist works. By infinite pains, years of conscientious study, an artist fits himself to produce a representation of the human face and form, and the photographer arrives at the same results (?) by buying a camera and hiring a retoucher—ah! the retoucher, we will not neglect him, for he is the pivot on which all turns.

But my readers may say where does the text come in with this denial to photography of the claims that so many put forth for it, and what consolation have you for the conscientious photographer? Now I have some encouragement. I have noticed with much satisfaction of late the making of prints from negatives without any retouching, and I am ready to prophesy that it is such a long step in the right direction that it will in a very few years completely revolutionize photography, and drive the maker of "putty faces" out of his high place to the ranks of the dollar man. I am satisfied that the great majority of photographers will at this time disagree with me, and say that it is only a fad and will die out, but when it dies out it will be because it has been succeeded by the next step in advance. Retouching is doomed, and after it is gone the unretouched prints will serve a great purpose in introducing another system that will be hailed with delight by artists themselves, namely, the transforming of the negative into a drawing, or rather the resulting prints from such a negative are practically drawings, which I hope to demonstrate later on.


Photograph by J. A. Lorenz.

But let us resume the subject of our article, the parting of the ways, or to be more specific, if also more prosaic, the doing away with retouching and substituting a new system, harsh it is true, and perhaps often chalky, but infinitely preferable to the old. We have known a man fairly worshiped for his skill in taking away all resemblance to his sitters, and have many times heard it said of him "that his photographs did not look much like people, but he did make such beautiful pictures." Who has not seen such work, and what man who wished to advance in his work and make the profession generally advance, but has felt that the makers of such stuff are constantly corrupting the public taste, and are the greatest enemies he has to deal with. While it is held in admiration, and sometimes commands a big price, what hope is there for the man who venerates art, to whom light and shade mean so much, who knows that the sweet face of the child and young woman, no less than the old man, are built over a frame, and that the frame shows through and makes the features what they are.

What cares the photographer of the retouching, putty manufactory about all that. He sneers at the "impractical man who doesn't know how to make money." And so this fad is going to revolutionize photography? It is indeed. It is seldom that fashion does anything good, but it is going to do a good thing in driving from popularity the retouched photograph. The unretouched prints are going to be the fashion—after that we shall be ready for the next step, and, Mr. Editor, in the language of the poet, "I will be mindful of thee and of another song."

SILVER IN PHOTOGRAPHIC PRINTS.

By R. E. Liesegang.

IN the finished negative, as well as in prints upon developed chloride and bromide of silver paper and in the printed-out chloride of silver pictures, we find silver in metallic condition. But in how many different forms does it appear? In negatives and bromide of silver enlargements, it looks black; in chloride of silver enlarging paper, green-black to brown; in printed-out chloride of silver pictures, yellow-red. The latter always require a gold toning, because they would otherwise be too weak. A layer of metallic gold will then spread over each little particle of silver. On account of its extreme thinness, the gold appears blue. The red silver will shine through the same, and thus the ordinary photographic tone will result.

Where do these differences come from? At first it must strike us that the silver, reduced from bromide of silver, appears in the black condition, while that which originated from chloride of silver is mostly red.

But it would be erroneous to build a chemical hypothesis upon this. Gaedicke has shown that red tones can also be obtained upon bromide of silver gelatine, if the emulsion was not ripened much; that is, if the bromide of silver was distributed in the film with extreme fineness of grain.

According to this, the color difference seems to have a more physical cause. In the black pictures, the silver has always a more or less coarse grain; in the red ones, however, no grain can be proven by even a good microscope.

We find it confirmed, that the red form will appear, if the silver salt is finely distributed in the gelatine. This is, to the highest degree, the case in presence of a soluble silver salt. The more free nitrate of silver is present in a printed-out paper, the more red it will print. But if a substance is put into a developer for bromide of silver pictures, which the bromide of silver is capable of dissolving—for instance, ammonia or hyposulphite of soda—that form will easily appear as red fog.

I have recently made some observations, which seem to confirm my hypothesis still further, namely, with the so-called physical development of the printing-out chloride of silver paper.

If a weakly printed picture upon chloride of silver gelatine paper is put into a solution of gallic acid, it will develop pretty soon to its full strength. This development is based upon the fact, that the nitrate of silver is slowly reduced by the gallic acid, and that the silver so formed will deposit upon the exposed chloride of silver particles. The latter enlarge also, and so much more, the longer the picture remains in the solution.

But this is necessary if the pictures had a very short exposure. Such a picture is green-black after fixing. If it was taken out of the bath before being completed, it would become red in the fixing bath.

Translated by
Henry Dietrich.

THE RECENT EXHIBITION OF THE ROYAL PHOTOGRAPHIC SOCIETY.

THIS exhibition, which has lately closed at the Crystal Palace, London, was admittedly the most successful ever held by the Royal Photographic Society, and from accounts which have reached us we believe it to have been very fully representative of photographic industry from its inception.

We quote from the *British Journal of Photography*, under date of May 13th, from an editorial on the subject, in part as follows:

"The historical portion of the exhibition serves as several excellent object-lessons to those who have only enlisted in the ranks of photography within the last decade or two, or since the gelatino-bromide process has been almost the only method by which negatives are produced. Most of those who read the journals have from time to time been told that there is little if anything in photography done now that was not done, and equally as well, thirty or more years ago, and before gelatine plates were invented.

"In this section of the exhibition the modern worker has the opportunity of seeing the results and judging for himself. He has also the opportunity of seeing the appliances with which they were obtained, and of appreciating the difficulties and inconveniences that the past generation of workers had to contend with, particularly in the case of outdoor photography with wet collodion, when all the chemicals, as well as a bulky, dark tent, had to be taken into the field. At that time the silver bath alone in its water-tight case, with perhaps a second in reserve, would probably weigh as much and be almost as bulky as some modern cameras with three dark slides for the same size plates. Yet work still unsurpassed, and instantaneous views even, were taken quite as good as those taken now-a-days on gelatine plates. Examples of these, by the late Mr. William England and by Mr. Valentine Blanchard—taken 1856–1865—are shown which prove it. Some of the primitive apparatus used in the Daguerreotype process and the calotype and wax-paper processes have been quite a source of amusement to some, yet withal, the older workers managed to obtain excellent results with it, and it is doubtful if they could have surpassed them, even with the most modern of apparatus, though, of course, they would have obtained them with far less inconvenience to themselves.

"Even in these primitive times there were enthusiastic photographers, who had, perforce, to prepare for themselves all the plates and papers they used, and in some cases even the materials with which they were prepared. While mentally comparing the amateur photographer of the past with the present, one cannot help speculating as to how many of the present-day amateurs would continue to practice the art if commercial dry plates and ready-sensitized papers were suddenly withdrawn from the market, and they had to prepare everything for themselves, as did their elder *confrères*—a very small proportion, we opine.

"With regard to the earlier processes, the historical section serves as an admirable object-lesson to modern workers if they compare them with the results by similar processes that are being worked at the present time. Of course, the Daguerreotype process is not worked now, therefore it may be classed as an obsolete one. Yet some of the Daguerreotypes show what an exceedingly beautiful process it was; particularly is that the case with some pictures of the Crystal Palace itself taken in the early fifties, and which are still as perfect as the day they were produced. For delicacy, beauty, detail, and last, though not least, permanency, the Daguerreotype is still unsurpassed by any other silver process. Paper negatives are still taken now on emulsion papers, and it is interesting to compare these with those taken by the old calotype and wax-paper processes for detail and half-tone, and more particularly for granularity, and it will be seen that prints from negatives taken by both methods in the early fifties will not suffer by the comparison.

"Film photography—with transparent rollable films and roller slides—is now looked upon as quite a modern invention, but it is not so. In the exhibition are some negatives, and transparencies therefrom, taken by Mr. Warnerke so long ago as the early seventies, and for excellence they are not surpassed by anything done now. Again, the glass-positive process we still have with us, and a very beautiful process it is. In fineness of detail, delicacy in tones and brilliancy, it is second only to the Daguerreotype, for at that period it was handled by skillful workers. Where, it may be asked, would one now be able to get glass positives taken, equal to some of those shown in the Historical Section at the Crystal Palace that were taken something like forty years ago? Yet the process was precisely the same as that still worked, the only difference being in the workers.

"Another object-lesson is this, Have we improved the quality or the permanency of our silver prints? In the exhibition are silver prints thirty, forty and more years old that as yet show little or no signs of fading. Can the same, judging from the experience of the past few years, be claimed for modern silver prints, now that a print only a few years old without change is looked upon as a thing quite out of the common? Silver printing, with modern papers, is certainly more simple than it used to be; but, if this convenience is purchased at the expense of permanence, it seems paying a high price for it, and at the same time it does not conduce to the credit of photography.

"Still another object-lesson. There are in the historical section, examples of many processes, and applications of them, that are now obsolete or dormant, though good, and it may be possible that under a new name they may some day be disinterred and made useful. Take a case in point: Pouncy's carbon process, of which examples produced forty years ago are shown, and which are technically more perfect than the majority of those produced now. This process became obsolete a few years after its introduction; but two or three years back it was disinterred, and under a new and utterly misleading name a pamphlet upon it was exploited. The process was brought forward as if it were a new one, and no credit whatever was given to its inventor. Just recently another pamphlet on the process has been published, but in this the author (Mr. W. J. Warren), to his honor, gives full credit to the inventor. In his pamphlet he says, 'The method Pouncy demonstrated in 1859 is practically the gum-bichromate process of to-day.' Seeing the prominence this old process has recently acquired, who will say that the same would not be the case with other extinct processes in the hand of would-be inventors seeking notoriety?"

PHOTOGRAPHERS' CLUB OF CHICAGO.

The Photographers' Club of Chicago enjoyed one of its characteristic feasts on the evening of Saturday, June 4th, at the Victoria Hotel, from 8 P. M. to 12.30 A. M., plus. Eighty-eight members were present. An excellent programme of music, lantern slides, etc., was provided.

The "bill of lading" is herewith presented, and the fraternity is at liberty to imagine what it missed, barring the eighty-eight who were present at the board:

Bill of Lading.

1. Blue Points—On Orthochromatic Plates.

2. Soup—Manila (Spaniards thrown in).

3. Fish—A Cinch (Spanish Mackerel).
Sweet Sauce—*Wallach* style.
Oyster Patties (*Pattison* style, Aristo Sauce).
Paris Olives, *Green* Sauce.
Norwegian "Water *Cris*" (*Anderson* Lake).

4. *ROASTS* (on anybody and everybody).
Beef, with serrated edge (*Edge-worth* eating).
Mutton (Mary's little lamb, with whale milk).

5. Entrees—en fours and fives.
Pigs' Feet (*Root* style).
Mushrooms—Scotch style (*Todd*-stools with handles).
Frogs' Legs—On Cramer Plates.
Caught at night by the light of the Photo-Beacon.
(Those who partake must not *Croak*).
Sardines—"Climax Brand."
(Every fish in every box will yield a perfect negative.)
Old Potatoes with New Sprouts.
(Young potatoes could not be served, as the onions got in their eyes and
the potatoes could not see to grow.)
Chicago Lake Water, with Cholera Bugs.
Through "*Watkins*' Meter."
(The more you drink the sicker you get).

6. I-Scream and Hices,
with Elephant's breath and feathers.

7. Crescent Cigarettes—they work while you sleep.

8. Coffee, with Cow Cream.
Crackers, with fire to light them.
Cheese, with Insect Powder.

The State Convention of the Photographers' Association of Omaha was held at Des Moines on the 19th of May, and the following officers were elected for the ensuing year: President, E. S. Frey; First Vice-President, J. C. Wilson; Second Vice-President, S. E. Waters; Secretary, M. O. Reed; Treasurer, F. W. Medlar.

THE WYNNE INFALLIBLE EXPOSURE METER.

HENRY WENZEL, JR.

HAVING taken up the question of the infallibility of the Wynne meter in a photographic journal of recent date, I shall confine myself in this article to making its usefulness apparent.

I know that many of our best workers scorn the aid of an actinometer. Some not only will not use the meter themselves, but condemn it without trial, and so mislead others. There seems to be no good reason why they will not employ a meter, save that by so doing they will have less opportunity for self-congratulation. It seems foolish, yet it is a fact, that the majority of workers would prefer to possess one good negative due entirely to "good judgment" than to own a dozen secured with far less trouble and expense by the use of an actinometer. Some of these workers, not many, are consistent, and apply the "rule of thumb" all around, so that, from exposure to finished negative, all shall be "intuitive"—a matter of feeling. One writer has said that "'feeling' evidences the photographer born," but as so few of this class are apparent to-day, and the present "born" photographers confess to having been made, and that at much trouble and expense, my advice is to save much of both in your making by the use of the Wynne meter.

Other good workers object that one will in time become dependent upon, and be unable to do without, a meter. I have not found this to be true, but were it absolutely true, and the meter worthy of the dependence, as the Wynne undoubtedly is, the objection would have little

FISHERMEN, CONEY ISLAND.

Photograph by H. WENZEL, Jr., with F/7.7 stop on Stanley S.50 plate.

weight. But, on the contrary, long and intelligent use of the meter will put one in possession of information that will make dependence upon the meter, under ordinary circumstances, entirely optional, while it will still be indispensable in extraordinary cases—and there are just such cases—where judgment is out of the question, past experience not furnishing a criterion.

And now as to exposure tables, the sole dependence of a host of amateurs. If the table is infallible, I know of nothing better. I venture to say, however, that there is not and cannot be an infallible exposure table, and that, save when the actinic quality of light measures up to the requirements of the table, the unreliability of the table is only too apparent. Take a Wynne meter in hand for a few days in the latter half of March or the first half of October and see if your table takes any notice of the varying actinism of the sun's rays "these unseasonable days" as the same is accurately recorded by the meter. This experiment will convince any one who tries it, of the need of an actinometer if accuracy in the matter of exposure is a desideratum. However, if an exposure table is desired, the very best of exposure tables may be made by the possessor of a Wynne meter. As a guide I give an extract from my records for the past six months:

ACTINOMETER TIME IN BRIGHT SUNLIGHT.

(Number of seconds in which sensitive paper colored to standard tint.)

Noon temperature in shade.	25°	40°	12°	45°	50°	70°	50°	60°	75°	70°	80°	90°
	January		February		March		April		May		June	
	1	15	1	15	1	15	1	15	1	15	1	15
												4
12 M.	16	16	16	12	10	8	10	8	8	6	5	4
11 A. M., 1 P. M.	20	20	20	15	12	10	12	10	10	8	5	4
10 " 2 "	24	24	24	18	15	12	15	12	12	10	5	4
9 " 3 "	28	28	28	21	18	15	18	15	15	12	5	4
8 " 4 "	55	55	55	30	21	18	21	18	18	15	6	4
7 " 5 "	..	..	..	..	70	35	70	30	25	20	7	6
6 " 6 "	..	..	..	..	..	.	..	..	..	..	20	20

The above figures represent the proper exposures in the vicinity of New York City for landscape in bright sunlight with bright foreground on each of the following brands of plates, with the stops given:

Carbutt's Keystone A	F 11
" " B	F 25
" Special No. 25	F 50
" Eclipse S. 27	F 64
" Ortho Portrait S. 23	F 39
" " S. 27	F 50
Cramer's (Cr. Lighting)	F 90
" Banner Lighting	F 78
" Isochromatic Medium	F 56
" " Instant's	F 90
Blair's Film, 25	F 56

Record Dry Plate R	F 64
" " M	F 50
" " S	F 45
Forbes' Landscape,	F 56
" Instantaneous S	F 90
Seed, No. S 23	F 64
" Extra Rapid S	F 90
" " No. 27	F 90
Standard, S, 50	F 64
" Ex. Rapid	F 56
Stanley, S. 35	F 64
" S. 50	F 90
Wuester's Non-Halation Inst. Ortho	F 56

The exposures given in the above table will need to be increased or diminished, according to the varying circumstances and conditions under which the exposure is made. The little book of directions for the use of the meter will be found to contain all needed information.

The table I have made is, in common with all other tables, not to be relied upon during the hour, and sometimes for the two hours, preceding sunset, save when the sun and sky are absolutely clear of yellow haze. During the major portion of some months it is difficult, indeed, to forecast for one day, or even for less time, anticipated exposures for the sunset hour. By using the Wynne meter, however, the proper exposure, even to the time of the setting of the sun, may be accurately ascertained. I think the advantage of the meter is evident.

It will be apparent at a glance that changes in temperature during the winter months are not accompanied by like changes in the actinic quality of light, which is noticeably not the case as spring approaches, as shown in the table. In twenty-four hours' travel in California I found it necessary to almost double my exposures. I surely would not have judged it needful, save for my actinometer readings. It was my first experience of this kind, and I doubt the value of the best judgment under the circumstances.

A word on the use of the meter. Don't hold the meter in the sunlight in midsummer expecting to be able to withdraw it when the proper tint is acquired, for about the first of July you will find the operation over with before you think it begun, *i. e.*, in three seconds.

The better way is to expose it for three seconds. When looking at it in the shadow, and finding this insufficient, by exposing it for another second or two you will have secured the proper tint. If photographing buildings in the city, you will find the light just four times as fast on the sunny side of the street as it is on the shady side; therefore, take your reading on the shady side, and for objects in sunlight divide it by four. Why some one has not thrown out these hints before I cannot imagine. It is simplicity itself to secure correct readings in the manner indicated.

I do not pretend to have put before you all the advantages of the Wynne meter in this article, nor could I do so to my satisfaction without entirely rehearsing my article on its infallibility. One fair trial will tell you much of what I have left unsaid. Constant use will tell you all.

THE G. CRAMER DRY PLATE COMPANY.

JUST as the BULLETIN goes to press the following communication is received, which tells its own story:

OFFICE OF
G. CRAMER DRY PLATE WORKS. ST. LOUIS.

The G. Cramer Dry Plate Company succeeds to the business of the G. Cramer Dry Plate Works, having just been incorporated with a capital stock of $200,000, fully paid up, divided into two hundred shares of $1,000 each. These shares are held by G. Cramer, F. Ernest Cramer, Jason C. Somerville and Emile Cramer respectively. The officers of the new corporation are as follows:

G. CRAMER, *President.*
F. ERNEST CRAMER, *Vice-President and Treasurer.*
JASON C. SOMERVILLE, *Secretary.*

The best wishes of the BULLETIN and, we believe, of the entire photographic fraternity, are extended to the new Company.

Photograph by H. WENZEL, Jr.,
with F/7.7 Stop on Stanley S.50 Plate.

UNDER THE TREES.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

DR. RUSSELL'S RECENT EXPERIMENTS.

By Rev. F. C. Lambert.

DR. RUSSELL recently brought to the notice of a crowded gathering at the London Camera Club some of his more recent observations. An editorial note in these pages in May last very properly pointed out the far-reaching importance of these investigations as throwing light on not a few puzzles and troubles all too common with photographers. Dr. Russell's lecture covered a very wide field, so that this must be taken as only a sketch of what he said. He had experimented with plates, bromide and solio papers. All gave results, but plates were most affected. Dividing the substances experimented with into organic and metallic, he found oils generally and linseed oil especially active. Turpentine, turpenes and terebenes are also active. Hence the markings from paint, printer's ink, etc., from the oil or turpentine they contain. On the other hand writing ink (iron and gallic acid) was inactive and prevented action passing through it. Among inactive bodies are alcohol, ether and esters, generally benzine, petroleum—when pure—but if they contained only a trace of some active body they became active. Hence the activity or non-activity of such a substance as ether, for example, could be recognized by its action on a sensitive plate. Wood was generally active, even when charred, or in form of charcoal, but if very strongly heated it became inactive. He had obtained well-defined markings with a piece of oak one hundred years old and a part of a mahogany camera thirty years old. Cinnamon powder, and cork, were among active substances. Moreover, the injurious vapor, or whatever it is, will pass through many substances, such as gelatine film, celluloid, gutta-percha, tracing paper, ordinary and vegetable parchment, gold beater's skin. On the other hand it does not seem to pass through glass or a film of gum arabic, mica or selenite. As to metals the following order fairly well presents their relative activity, the more active being magnesium, then cadmium, zinc, nickel, aluminium, lead, bismuth, iron, cobalt, Alloys are active or not as they contain the active metals. For example, if there be more than 45 per cent. of zinc in brass it becomes an active mixture. He has shown that oxidation of the surface of a metal stops its action; *e. g.*, by tracing a design by scratching an oxidized sheet of metal the design only is reproduced. This is an important practical point. Dr. Russell details various experiments, showing apparatus and results, all going to prove that in these phenomena we are dealing with something of the nature of a vapor. It turns corners, and flows along in the same way that any ordinary visible vapor does. Moreover, there are degrees of action, time intensifying it up to a point, when reversal sets in. For example, complete reversal had been brought about by terebene in forty-three hours, the image being practically obliterated. The amount of an injurious, *i. e.*, active, substance required to produce an effect was surprisingly small. Mercury when quite pure was inactive, but if it contained only one three-hundreth per cent. of zinc it became active. Or if zinc be soaked in alcohol or ether for a few days, enough metal was taken up to render the alcohol active. The zinc taken up could not be removed by filtration. Or, again, a zinc disc covered by an inactive fluid, such as benzine, petroleum spirit, was able to send its active vapor through the liquid even when the liquid was one-fourth of an inch thick. Heat augmented the effect considerably. The effect of a two-days' exposure at 15 degrees Cent. was obtained in two hours if the temperature was 55 degrees Cent. Presence of moisture was also an important factor. For example, if a piece of blotting paper be wetted and dried it becomes opaque to these actions, but slowly recovers its transparency. Bristol board permits more action to pass through when damp than when dry. The structure, water-mark, etc., of papers could be perfectly reproduced by these vapor actions. Paper impregnated with ordinary writing ink cuts out the action of zinc. Ordinary so-called card, or straw board, was an active substance. Mr. Henderson brought to light an important fact founded on experience with camera markings, viz., that by treating the vapor-affected plate with some suitable alkaline solution, such as lithium carbonate, the hurtful vapors could be removed before development. Mr. Warnerke had also experimented in this direction, and some of his results did not agree with those of Dr. Russell. In one instance various substances, coins, etc., were put in contact with a plate and then exposed to copal varnish On development most of the coins were more or less reproduced, but the all-too-common dark line round the edge did not develop out where it had been in contact with (1) a platinum coin, or (2) a microscopic cover glass. These two points at present have not been explained. Dr. Russell's investigations indicate the importance of care in the storage of plates or films.

DIAPHRAGM SYSTEMS.*

ONE of the first things to be understood in the use of a lens is the system adopted by the maker for the marking of the diaphragms or "stops." Much ignorance or confusion prevails on this subject, and our correspondence shows that few photographers have a working knowledge of their diaphragms and their relative capacities. This confusion doubtless arises, in part, from the fact that almost every lens manufacturer uses his own special system for marking the diaphragms supplied with his objectives, so that the photographer practically has to master a new system with each new lens acquired.

Some years ago the Royal Photographic Society of Great Britain, after much deliberation, put forward a system called the "Uniform System" (U. S.), in the hope that lens-makers everywhere would adopt it. This would obviate the existing confusion; but, unfortunately, few opticians have undertaken the desirable change. For the convenience of our readers we here present a brief *résumé* of the various systems of marking diaphragms as used by the best known opticians :

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* *Wilson's Photographic Magazine.*

1. *The Uniform System* (R. P. S. G. B.).—According to this system the diaphragms of a lens are numbered according to their area, or, as an alternative plan, the numbering is given in terms based on the proportion of the diameter of the stop to the focal length of the lens. *F*/4 is determined as the starting point, and expresses a diaphragm the diameter of which is one-fourth of the focal length of the lens. This is marked No. 1. The next stop has a diameter of one-half the area of No. 1, and requires double the exposure necessary with No. 1. It is marked No. 2. The following stop has a diameter only one-fourth the area of the first (No. 1), requiring four times the exposure necessary with No. 1, and therefore marked No. 4.

These two methods, which really express the same thing, are therefore figured out as follows:

No. 1	2	4	8	16	32	64	128	256
f/4	*f*/5.6	*f*/8	*f*/11.3	*f*/16	*f*/22.6	*f*/32	*f*/45	*f*/64

2. *The System adopted by the Congress of Paris.*—As the unit *f*/10 is taken—that is, the diaphragm opening measures one-tenth of the focal distance—this diaphragm is numbered 1, and the others are numbered according to the relative exposure required—thus, stop No. 4 requires four times more exposure than No. 1. According to this system it is an easy matter to give the number of a diaphragm when its relative aperture (in respect to the focal length) is known. All that is necessary is to square the relative aperture and to divide the result by 100. Thus, for a stop having a relative aperture of *f*/17.5 we proceed thus: $\frac{17.5 \times 17.5}{100} = \frac{306.25}{100}$ = nearly three, which is the number of the diaphragm. Inversely, to deduce from the number of the diaphragm its relative aperture, it suffices to multiply this number by 100, and to extract the square root of the product. For example, the diaphragm No. 4 corresponds to an aperture $\sqrt{\frac{f}{400}} = \frac{f}{20}$. This system has been adopted by the French optician, Suter, of Basle, and by Steinheil.

3. *The System of Dr. Stolze*, employed by Goerz.—According to this system, "1" denotes the rapidity of a lens working at aperture $\frac{F}{\sqrt{10}} = \frac{F}{3.16}$; "6" is that of a lens working at the effective aperture $\frac{F}{\sqrt{60}} = \frac{F}{7.7}$, etc.

The stops carry the numbers, which correspond to the apertures:

No. 6	9	12	24	48	96	192	384	768
$\frac{F}{7.7}$	$\frac{F}{9.5}$	$\frac{F}{11}$	$\frac{F}{15.5}$	$\frac{F}{21.9}$	$\frac{F}{31}$	$\frac{F}{43.8}$	$\frac{F}{62}$	$\frac{F}{87.6}$

4. *The Dallmeyer-Stolze System*—This system differs from that of Goerz only in the numbering of the diaphragms. Unity is represented by the relation $\frac{f}{3.16} = \sqrt{\frac{f}{10}}$ and this diaphragm bears the number 1. To deduce from this relative aperture the number of the diaphragm,

it is necessary to square the relative aperture and to divide by 10. For example, to what number of this system the diaphragm having for its diameter $\frac{f}{31}$? *Answer:* $\frac{31 \times 31}{10} = 96$. Inversely, to deduce the relative aperture, the number of the diaphragm being given, multiply the number by 10, and extract the square root of the product obtained. For example, the diaphragm No. 96 corresponds to $\sqrt{96 \times 10} = 31$, or to $\frac{f}{31}$. In this system also the numbers indicate the relative length of exposure required, so that with the stop No. 96 will be necessary 96 times the exposure for No. 1. It is used by Dallmeyer, London, and Voigtlaender. The Collinears of the last named are marked thus:

No. 2	(2½)	4	8	16	32	64	128	256
f/5.6	(*f*/6.3)	*f*/7.7	*f*/11	*f*/16	*f*/22	*f*/32	*f*/45	*f*/64

5. *The System of Zeiss.*—Zeiss marks diaphragms according to their luminosity; the number of the stops are not, therefore, in direct ratio to the corresponding duration of exposure, but in indirect proportion thereto, and thus stop No. 4 requires four times less exposure than No. 1. The unit of luminosity is given by the diaphragm having for its diameter *f*/100. In this system to deduce the number of the diaphragm, divide the square of the unit of luminosity (or 10,000) by the square of the relative aperture, and the quotient will give the number of the diaphragm. For example, *f*/50 corresponds to the number $\frac{10{,}000}{50 \times 50} = 4$. Inversely, to deduce from the number of the stop the relative aperture, extract the square root of the number, and divide by 100, the number obtained. For example, the diaphragm No. 4 corresponds to $\frac{100}{\sqrt{4}} =$ 50, that is to $\frac{f}{50}$. This system is adopted by Zeiss only.

THE DEVELOPMENT OF OPTICS DURING THE PRESENT CENTURY.

(*Concluded from June Number.*)

OPERA glasses and field telescopes have been considerably improved, the instruments being handier and lighter, and they have become accessible to the multitude, which has further stimulated improvement The recent application of prisms to opera glasses has rendered it possible to considerably increase the field of view and power, without increasing the length, and their application to double hand-telescopes enables the officer to keep out of sight while watching the movements of the enemy.

Microscopes at first were merely inverted telescopes. Galileo's was such an instrument held in a stand, the object being on the table. Gradually the object was supported and illuminated from above or below, first by a candle beneath the object, later on a mirror. The focusing was effected by sliding the tube in a ring, and then by a cog-wheel. The lenses used were ordinary spectacle lenses which gave but little magnification and defective definition, in consequence of the colored fringes which bordered the image. A great step in advance was made by Huyghens, Newton's contemporary, who devised eye-pieces which closely resemble those now in use.

At the beginning of this century, Chevallier, of Paris, first made small achromatic lenses in the manner indicated by Dolland, combining a lens of flint glass with another made of crown glass; he found, however, that they were too imperfect to be of any service. The first really effective achromatic lenses were made in 1808 by Bernandino Marzolli, of Brescia, by cementing a bi-convex crown glass lens to one made of flint glass, concave on the one side and flat on the other, the flat side being turned towards the object to be examined. Until quite recently these combined lenses, known as doublets, have been generally adopted, since they gave the greatest flatness of field, and the best definition. In 1823, Sellique, a French optician, greatly improved the construction of microscopes by making a stand which somewhat resembled those now used. He further improved his instrument by placing a series of Marzolli's doublets, one above the other, and Fresnel reported that Sellique's best instrument gave from 40 to 1,000 diameters magnification.

PORTRAIT STUDY.

Photograph by C. A. Krauch.

The success of French opticians inspired English scientists to take up the subject, and in the hands of Sir John Herschel, Airy, Barlow, Coddington, Powell, and especially Joseph Lister, the microscope rapidly assumed the form of an instrument of delicacy and precision. In 1830, Lister read a paper before the Royal Society, which really inaugurated the modern microscope. He showed how the various double lenses had to be placed in order to lessen error as much as possible, and to make the image sharp and crisp. All he said was accompanied by mathematical data so that the optician could easily carry out in practice what had been worked out in theory. In 1831, Andrew Ross established his factory in London, and, applying Lister's principles with great success, made excellent instruments. He improved the rack and pinion for focusing, and by means of a screw and spring made a fine adjustment somewhat resembling that we now use. James Smith placed an optically-corrected condensing lens between the mirror and the object to be examined, and thus made the first scientific substage condenser. Powell obviated the loss caused by light traversing air between the object and the objective, by constructing a lens which dipped into a drop of water on the coverslip, thus doing away with the air space. The instruments of precision to which we have already referred, gradually told on the perfecting of microscopes, and in 1877, Professor Abbé, of Jena, published his great work which forms the basis of the additions made in recent years. He replaced the water by cedar oil of the same refractive index as the glass used for covering the microscopic objects, thus making homogeneous immersion lenses which insured perfect optical continuity and still further increased the angle of aperture. With the assistance of the glass-maker Schott, Abbé removed the secondary spectrum, in other words, the last vestiges of color which still fringed the images, by means of so-called apochromatic lenses, made of fluor-spar combined with glass containing borosilicate; and he devised compensating eye-pieces for use with these new lenses. The substage condenser which bears his name is a highly perfected illuminating appliance, but it has been still further improved upon by Zeiss, of Jena, who rendered it achromatic and fitted it with centering screws, while Powell and Lealand, of London, going a step further still, have made apochromatic substage condensers.

The iris diaphragm, that beautiful contrivance suggested by the iris of the eye, simulating the enlargement of the pupil and its contraction to a pin's point, has been applied to the microscope, which together with a device for illuminating with oblique light, completes all that modern science requires. A Nicol prism fitted in the ring that bears the iris diaphragm below the substage condenser, and another in the eye-tube of the microscope or above the eye-piece, enables us to use polarized light with the microscope. Numberless devices exist for measuring and finding microscopic objects, and revolving stages carefully graduated, and eye-pieces with cross lines or wires assist us in crystallographical researches. The most recent petrological microscopes are fitted with a quartz plate so that even circular polarization is at our disposal, when we gaze at highly magnified objects.

The microscope, and the numerous devices for preparing thin transparent sections and stained preparations, has revealed to man an entirely new world, a world of the infinitesimally minute; and further value has been given to the microscope by the adaptation of photography for recording that which the instrument reveals. A camera without lens takes the place of the observer, the object being focused on the plate by means of the microscope objective itself. With low powers the eye-piece of the microscope is dispensed with; for high powers, specially constructed projecting eye-pieces are employed.

The camera obscura, although to some extent employed for drawing purposes at the beginning of this century, was chiefly used to observe the passing throng, and ships at sea, as is still the case at some of our seaside resorts. In recent times it has been applied for purposes of coast defence, When a submarine mine is laid, a cross is made on a white sheet in the camera to indicate its position, so that when an image of an enemy's ship passes over this cross the mine can be fired. The magic lantern, which is after all but a reversion of the camera, developed greatly at the beginning of this century—first as a toy, but later for use in the lecture room. But it was the invention of photography which raised the camera to its present usefulness, and the lenses, by means of which the images are focused on to the plate, has opened up a new and immense field to the optician.

At first an ordinary single lens was used for photography, but this was speedily discarded, being replaced by achromatic lenses which brought the visual image into the photographic plane. They, however, still had very great defects. The angle was very small and did not insure a sharp image over the entire plate; straight lines appeared curved, circles when seen at the edge of the plate appeared oval and ill-defined, and, lastly, rapidity of exposure, so essential for moving objects, could not be attained. The first device to remedy this was to make lenses of immense size increasing the area of sharpness by means of a small diaphragm or stop in front of the lens. This method of increasing the field required a very prolonged exposure, thus rendering portrait photography almost impossible and the photography of moving objects out of the question. In 1840 Von Ettinghausen mentioned this defect to Professor Petzval, of Vienna, who set to work to calculate how it could be remedied. Under his direction the optician, Voigtländer, produced a portrait lens which until quite recently held the field.

The number of different lenses since invented is too great to enumerate. I would single out, however, that made by Thomas Grubb, in 1857, by reversing the positions of the flint and crown glass of the achromatic lens. This lens, known as the aplanatic, was improved by Dallmeyer in 1865, who made a wide angle landscape lens. It was then discovered that by using a pair of these lenses and mounting them back to back at each end of a short tube, the distortion of straight lines was entirely overcome, and lenses of this kind, made by Dallmeyer, Ross and Swift, were almost universally employed in England until the introduction of the Jena glass within the last few years produced a new era in lenses. Simultaneously with this development in the optical apparatus, chemistry has furthered the application of photography by the discovery of methods which render it possible to prepare plates sensitive to the various portions of the spectrum. The introduction of the so-called isochromatic plates has opened up a field for photography which would have otherwise been closed to it. The application of photography, for instance, to microscopical purposes would have been very limited without these plates; moreover, they have been instrumental to the recent introduction of a species of color photography. Helmholtz discovered that by the combination of pure blue, red and green, all the apparent hues of the spectrum could be produced. Now, by photographing on separate plates through screens of glass of these three colors and printing three superposed images from these plates, a print with natural colors can be produced. This and other processes devised by Lippmann, Ives and Joly are steps in the direction of photography in natural colors which is the great desideratum of the age.

The stereoscope was first made by Wheatstone in 1838. Brewster had explained binocular vision and shown that the image seen with one eye differed slightly from that seen with the other, and that the superposed images thus conveyed to the brain give the impression of solidity. Wheatstone carefully drew what he saw with each eye, and by superposing the images, by means of mirrors, obtained a picture in relief. Brewster himself improved on this by placing these pictures side by side in a box, and viewing them through two-prism lenses. His stereoscope is the one used to-day, the pictures being frequently replaced by twin photographs. Helmholtz devised an improved stereoscope. By means of prisms he was enabled to place the pictures much further apart than the distance between the eyes, and, as he could thus employ larger pictures, he greatly increased the deception. His instrument, known as the telestereoscope, is very rarely met with. Zeiss has recently constructed a relief hand telescope on the same lines.

Lighthouses were, as I have said, at the beginning of this century, little better than beacons. The numerous new sources of powerful artificial light have, to a great extent, determined their development. It was the province of the optician to concentrate the light which would be otherwise scattered in all directions, so as to produce a powerful beam thrown to the greatest possible distance, and embracing the greatest area. This could only be effected either by reflection, which is known as the catoptric system, or by refraction, known as the dioptric system.

During the early years of this century parabolic reflectors were made of small facets of silvered glass, of which a number were needed to embrace the horizon. In 1819 Mercet joined two parabolic reflectors with a light in the middle, and, by causing the reflectors to revolve, greatly simplified the system. Reflectors had the disadvantage of absorbing a great deal of light and becoming readily tarnished. It was recognized that these defects could be obviated by using lenses, but it was obvious that a condensing lens to be serviceable would have to be of enormous size and thickness, since the rays emerging from the radiant at every angle have to be caught up by the lens and projected to the horizon in a horizontal beam of light. Such a lens would absorb too much light, be far too costly and too heavy. Fresnel, in 1822, overcame these difficulties by his great invention of the dioptric prismatic lens. He employed a small central bull's eye condenser, and then built up the lens, as it were, by a series of concentric prism-shaped rings of glass. Later on this was further improved by dividing the rings into sections, forming a kind of prismatic cage, the interval between the sections being filled in by the rotation of the lantern. This excellent system is largely employed at the present time, although we have a still more perfect lantern devised by Allan Stevenson in 1850, who, by employing a peculiar shape of prism, giving two internal reflections instead of one, succeeded in throwing the entire light given off into one perfectly horizontal beam. Such a light, sweeping round the horizon illuminated by the electric arc, throws a beam of over 60,000,000 candle power to the extreme horizon.

From the primitive candle reflector of the old Eddystone lighthouse to the 60,000,000 candle power beam of Cape Breton, what a step! And yet it has only taken a century.

The spectroscope can be said to date from that made by Bunsen and Kirchoff. At first the spectrum was observed through a single prism. Fraunhofer and Mousson added a telescope. The Bunsen instrument improved by Steinheil consists of a fixed telescope known as the collimator, which carries a slit or grating above the ocular, the rays of the light to be examined being concentrated on to the slit or grating by means of a lens. An observing telescope movable on a graduated stand and a third telescope fitted with a scale complete this instrument, which can be regarded as the type of our present spectroscopes. Bunsen used several prisms in order to spread out the spectrum as far as possible, and a number of different arrangements of prisms have since been suggested, but the tendency has been to discard these in favor of single prisms of great dispersive power. Bunsen and Kirchoff used the solar spectrum to determine the position of the lines seen in the spectra examined, and some spectroscopes are still made in which a second small prism is used for the production of a standard spectrum. The scale of Fraunhofer lines has also been used, but at present our spectroscopes are fitted with graduated scales made from the Fraunhofer lines.

Direct vision spectroscopes have been devised and arranged so that they can be adapted to the eyepieces of the microscope and the telescope. The discovery by Professor Stokes, that the invisible rays of the spectrum, found by Ritter, could be rendered visible by their effect on certain chemicals, known as phosphorescence, led to a better knowledge of the invisible rays of the spectrum. He further found that glass did not allow these invisible rays to pass freely, but that quartz was much more transparent to them, and he caused Darker to make the first spectroscope in which quartz was substituted for glass throughout the instrument. Dr. Miller, of King's College, replaced the observing telescope by a camera with a quartz lens, and photographed the visible and invisible spectrum. Cameras are now attached to the spectroscopes fitted to telescopes, so that the spectral analytical observations of the light emitted by the heavenly bodies can be recorded on the sensitive plate.

Refractometers, by which the refractive index of both solids and liquids can be determined, have gradually attained great perfection. They are based on the principle that when light strikes a transparent substance at an angle, it is partly reflected and partly transmitted, except at a certain angle known as the angle of total reflection, which bears a constant relation to the refractive index. Therefore, if a substance is examined between two prisms, the limit of total reflection and absence of transmitted light where a shadow line appears can be observed, and from this the refractive index of the substance introduced, can be determined. At first this required considerable calculation, but the most recent instruments, more particularly Abbé's refractometers, enable us to read off the result on a scale, not only as regards the refractive index for monochromatic light, but also the relation between that of two different portions of the spectrum, known as the dispersive power of the substance examined.

Polarizing apparatus as constructed by Norremberg and others, known as reflecting polarizers, in which sheets of clear glass are used as polarizer and a black backed mirror as analyzer, have been superseded by polarizers made for use alone or with the microscope, consisting of two Nicol prisms, one fixed and the other rotating on a graduated scale. For telescopes a single Nicol prism suffices, as only an analyzer is required to see whether the light from a planet or moon is already polarized by reflection or not.

Polarimeters to determine circular polarization, the so-called rotary power of a substance, were first made by Mitscherlich, consisting of a metal tube fitted with a stationary Nicol prism at one end, and a rotatory prism at the other, a pointer on the latter sliding on a graduated scale. Inside the metal tube is a glass tube of definite length, closed at both ends by movable glass discs. By means of the indicated rotatory power and the specific gravity of the liquid, the specific rotary power is calculated. Soleil and Ventzke improved this instrument by placing next to the polarizer a disc of quartz, one-half of which consists of right, the other of left turning quartz. By matching the color of the two halves greater precision is obtained.

Colorimeters and tintometers, of which a great variety are made, have as their object the determination of the exact shade of color of the substance examined.

The photometer, an instrument for the purpose of determining the intensity of light by comparison with a standard candle, was first invented by Count Rumford, who projected the shadows of a stick cast by the two lights on to a screen, comparing their intensities. Numerous other devices have since been suggested. The most recent is the prismatic photometer of Lummer-Brodhun—a highly delicate instrument—by which minute differences in intensity can be measured.

Mirrors have been greatly improved by the discovery of the use of mercury for the purpose of coating glass with metals, and especially by the manufacture of plate glass in large sheets. Mirrors are now made of every shape and curve, so that they are frequently used for distorting images, multiplying reflections, and producing illusions on the stage. The so-called Pepper's ghost, the talking head, and fairy glen are produced by large sheets of plate glass and mirrors. Surgical instruments for the illumination of the throat, ear, nose, and other parts of the body depending on the reflection of artificial light from small mirrors, are all inventions of the latter half of this century.

The sextant, an instrument by which every captain determines his position at sea, was invented by Hadley in 1731, yet so admirably did he contrive it that its form remains practically the same at the present day.

The theodolite, which consists of a small telescope movable on graduated scales, both horizontally and vertically, fitted on a tripod furnished with leveling screws, is largely used by surveyors to determine angles which, by the aid of trigonometry, enable them to calculate the relative positions of objects on the plane and the height of distant elevations. Similar instruments, known as range finders, are fitted on to heavy guns for ascertaining the range of fire, the scale being graduated in yards instead of degrees.

Vacuum tubes were invented by Crookes in 1865. In the course of his far-reaching work on spectrum analysis, he examined the spectra of gases by placing them in closed tubes, into the ends of which wires were fixed, which he connected with an intermittent current of high tension, thus rendering them incandescent by means of electricity. He noticed that various gases emitted different colored light, and that a change occurred when the gases in the tube were rarefied. Tubes thus constructed to emit different colors are known as Crookes' luminant and radiant matter tubes. Exhausting a glass bulb as far as possible, and passing the electric spark through it, he made the vacuum tube which bears his name. In 1894 Lenard noticed that the emanations from the negative pole or cathode of a Crookes vacuum tube passed through thin plates of metal and solid planks of wood, and Hertz discovered that these rays were sensibly deflected by a magnet. In 1895 Dr. Röntgen, of Würzburg, working with a Crookes tube, noticed that some photographic plates in his laboratory had been affected, and this led him to the discovery that certain rays emitted by the tube, now known as X rays or Röntgen rays, were photographically active, and that to them substances were transparent which are opaque to light. He thus photographed through thick books and wood; and, further, found that flesh is transparent to these rays, so that the bones of a living being can be photographed. Most metals, like the bones, proved opaque, and could be seen through the body. One would almost imagine that Dickens, in his description of Marley's ghost, had foreseen this discovery, when he says "his body was transparent, so that Scrooge, observing him and looking through his waistcoat, could see the two buttons on his coat behind." Already the discovery has been applied by the surgeon to diagnose fractures, dislocations, and foreign bodies. Additional value has been given it by the discovery that these rays can be rendered visible by means of a screen of platino-cyanide of barium.

To this I must limit my remarks to-day; but before closing I wish to refer to the great discovery of the age, known as the correlation of forces; the recognition that motion, heat, light, electricity and chemical action are merely different manifestations of one and the same energy, and are mutually convertible. Crookes' radiometer, consisting of light metal vanes which revolve in a vacuum bulb, moved by the sun's rays, is evidence of this, as also our electric light, and we know that light, falling on a selenium plate, produces an electric current.

This century has shown us how our thoughts can be flashed along a wire, and we have lately been shown that even the wires can be dispensed with. We have ceased to marvel when we hear the voice of a friend many miles away, and we can conceive that, in the next century, seeing at a distance may likewise cause no astonishment. What other marvels the future may have in store as an outcome of the constant advance of knowledge, who dare say? but I think I may venture to prophecy that optics will contribute quite as much as, if not more than, her sister sciences.

CLIPPINGS FROM GERMANY.

From *Photo Chronik.*

IODIDE OF SILVER PAPER.—The old process with iodide of silver paper, after Legray, is again coming into use for the purpose of producing contact prints. Suitable plain paper is immersed for a quarter of an hour in the following bath:

Sugar of milk	5 g.	=	1 dr. $17\frac{1}{5}$ grs.
Iodide of ammonia	2 "	=	$30\frac{4}{5}$ "
Rice water	90 c. cm.	=	3 oz. 1 dr. 21 minims.

After drying, the paper will keep for any length of time, and for use is sensitized in the following silver bath:

Nitrate of silver	10 c. cm.	=	2 drs. 49 minims.
Glacial acetic acid	14 "	=	3 " 57 "
Distilled water	150 "	=	5 oz. 2 " 15 "

The paper is dried between blotting paper, and exposed in a printing frame. In sunlight it requires five seconds, even one second being sometimes sufficient. In diffused daylight one-half to one minute's exposure is sufficient. The paper is now taken to the darkroom, placed upon a glass plate, picture side up, and the following solution is poured over it:

Alcohol	4 c. cm.	=	1 dr. 8 minims.
Gallic acid	0.6 g.	=	$9\frac{1}{4}$ grs.

After complete solution of the gallic acid, add 150 cubic centimeters of water. After a few minutes, the picture will begin to appear with a reddish tint. To change this color from red to black, brush the picture with a brush which has been previously dipped in an acetate of silver bath. As soon as the picture is strong enough it is washed thoroughly, and finally fixed in the following combined toning bath:

Hyposulphite of soda	75 g.	=	2 oz. 3 drs. $17\frac{2}{5}$ grs.
Chloride of gold	0.6 "	=	$9\frac{1}{4}$ grs.
Water	300 c. cm.	=	10 " 4 " 30 minims.

The chloride of gold is dissolved in a small quantity of water, and is gradually added to the fixing-soda solution. After fixing, the picture is left in this bath until it has reached the correct tone.

Translated by
HENRY DIETRICH.

PRELIMINARY COATING FOR COLLODION PLATES.

By Dr. E. Vogel.

TO escape the tedious work of cleaning glass for collodion plates, a so called preliminary or subcoating is now frequently used, which at the same time answers the purpose of securing a better adhesion of the collodion film to the glass plate. It has also the advantage that by its use even old glass plates, which, no matter how thoroughly cleaned, would not furnish fine negatives, can be employed.

If this fore-preparation of the plate is condemned by some who may claim that it will lead only to carelessness in the manipulation of the process, I reply that only defective practical experience can reason in such a way, because the subcoating of the plate, if not correctly done, will always be accompanied by failure.

The best proof of the advantages of fore-preparation is, that most of our larger reproduction houses, with a very few exceptions, use subcoated plates. In the collodion dry process (bromide of silver collodion plates, chloride of silver celloidin, diapositive plates, etc.) a subcoating is actually required, because the collodion film will almost always float off the glass without the same.

The oldest subcoating, and one which is excellently suitable for collodion plates, is very diluted albumen with an addition of a little ammonia. The well acidified and washed plate is flowed with the same several times, and is then left to dry. By contact with the silver bath the albumen coating will coagulate, and thus bring about an extremely solid adhesion of the collodion coating to the glass.

Some photographic text books recommend the albumen subcoating also for collodion emulsion plates, but it is not applicable for this purpose, because the albumen coating does not come in contact here with the nitrate of silver solution, and remains, therefore, soluble in water, so that the collodion will easily float off during developing, fixing or washing.

The quality of the eggs used for the subcoating is very important. With fresh eggs good results will always be obtained, whereas bad eggs may cause considerable damage. The application of dry albumen (1 gram albumen, 300 cubic centimeters of water, and 1 cubic centimeter ammonia) is therefore preferable, and has the advantage of being cheaper. Good albumen, after being dissolved, should leave only a small precipitate.

A subcoating, which is applicable for all kinds of plates, wet as well as collodion emulsion plates, is the rubber subcoating, which is produced by dissolving 1 gram pure rubber in 100 cubic centimeters benzine (not benzol). This filtered rubber subcoating is flowed upon the plate. It has the advantage that it will dry in a few seconds, so that the plate can be prepared immediately before use. But the rubber subcoating has also the disadvantage, that negatives produced on the same and subjected to much use in printing, will peel off, as rubber, when exposed to light, becomes brittle. For negatives of great value this kind of subcoating is therefore not to be recommended, while it is of great advantage for negatives in the production of etchings, which are generally used only once.

The rubber subcoating is also very suitable for negatives to be stripped from the glass. All other subcoatings are useless for this purpose.

Another subcoating to be recommended is the well-known chrome gelatine subcoating. The same is produced with a pure emulsion gelatine, free from all fatty substances (1 gram gelatine, 300 cubic centimeters of water, 6 cubic centimeters chrome alum solution 1:50). The chrome alum addition is for the purpose of hardening the gelatine.

This subcoating is flowed upon the well acidified and washed plate still wet, the same as the albumen subcoating, two or three times. Particular care should be had, that the gelatine adheres uniformly over the plate.

Plates so prepared are applicable for wet plates, collodion emulsion plates and collodion dry plates. This subcoating can also be recommended for bromide of silver gelatine plates, as all frilling will be avoided thereby. Plates to be used in tropical countries should always have a preliminary or subcoating of chrome gelatine.

In place of the chrome gelatine solution a formaline gelatine solution may also be applied. The same is composed as follows:

Let 2 grams gelatine swell in 1,000 cubic centimeters water, and melt it then in the water-bath, whereupon 10 cubic centimeters formaline solution (Schering) are added. The formaline will harden the gelatine, so that the dry film is insoluble in water, and it is also an admirable disinfecting medium, and will prevent the formation of mould on the plate.

The formaline exercises no injurious influence upon the negative process.

Translated by
HENRY DIETRICH.

MANUGRAPH AND PHOTOGRAPH.*

By HECTOR MACLEAN, F.R.P.S., F.G.S., etc.

A VISIT to the exhibition recently held by the Royal Society of Painter-Etchers and Engravers suggested certain trains of thought concerning the distinctions and differences between photographic half-tone and the mezzotint of the artist, which are not without value to the process worker.

Intrinsically the two terms above mentioned mean identically the same; but, as they are now used, whilst the one expresses the product of camera and screen, the other stands for the offspring of the copper-plate, the cradle, the scraper, etc.

Setting aside the radical difference in taking impressions called for by these otherwise not unallied processes, it is matter for considerable interest, and some profit, to contrast these two essentially tone processes; or rather—and this is perhaps more useful—to briefly glance at the mezzotint process and consider how it compares with the half-tone block, not as the latter is too often presented, but as it sometimes appears, *i. e.*, when full care has been bestowed upon the printing.

Taking the tolerably numerous collection of mezzotints displayed at the Painter-Etchers' Exhibition as a reasonably fair sample of the particular kind of engraving, one cannot but be struck by the undue gloominess of the prints.

Process Worker and Printer.

The reason why this should be so, though not always well understood, is not very far to seek. Unlike most, but not all, monochrome methods, mezzotint is worked by a system of putting in of lights. That is to say, the mezzotint engraver starting with an absolutely black ground, by means of scrapers and burnishers and other tools, carefully adds light to the darkness until the picture stands revealed in all the perfection which he can afford.

Obviously his chief care is to avoid losing the shadows, which, once gone, cannot without considerable labor, be recovered. Hence it must needs happen that, inasmuch as nine-tenths of mezzotints are never as fully finished as they are capable of, there is bound to ensue a constant inclination for the print to be overweighted with dark half-shadows, dull half-lights, and densely black shadows. This natural leaning towards gloominess has, in course of time, become an acquired characteristic, which, in many circles, passes as a certificate of merit.

In studies accomplished with the etching needle, we, however, meet with a complete antithesis to the mezzotint. This I draw attention to, as some untaught readers may possibly confuse these two methods of engraving.

The wielder of the needle and burin, works by adding dark lines to a white or light surface. With him the danger obviously lies in losing the lights, and hence. in so far as he stops short—which he does with much frequency—there is left in his print more than the average amount of high-light.

The above points should always be borne well in mind, whenever comparison is being made between the photographic and—to coin a new term—the manugraphic methods of printing.

Photographers—not excluding photo-mechanical workers—are being constantly twitted with the perhaps not quite unfounded disparagement that although they are at times fairly accurate, they are generally incapable of certainty of translation and sureness of accent. They, so to speak, are well enough able to transcribe the words and preserve the grammar of the original, but are more than apt to confuse the sense, lose the idiom, and leave out the meter.

There are, however, always at least two sides to every story, and the advocate of photography may fairly retaliate upon the etcher by emphasizing how, depending entirely upon that "uncertain instrument," the hand, he must needs oftentimes perpetrate many imperfections not present in the original.

Beyond which it is to be remembered that if a man be put to copy any work—apart from the shortcomings of the hand—he will produce a personal impression which will differ from the original according to his mental temperament and physical idiosyncrasy, which last is so variable that it is doubtful whether any two individuals are capable at all times of seeing alike.

Over and above this personal disturbing factor, there is another, and oftentimes even more baneful influence where a manugraph is made—viz., the bias of the process employed.

Thus a reproduction produced by means of the etching needle, however faithful it may be in outline, cannot but fail in completeness of total modulation, and is moreover very apt to be redundant in light. On the other hand, pure mezzotint will invariably be prone to lack sharpness of definition, firmness of line, and wealth of luminosity.

It is no answer to say that there exist certain other—what may be called hybrid—methods, which, in great part, escape the particular shortcomings above described.

Admitting for argument's sake, that this is so, it merely means that these other engraving processes have a different set of faults—called characteristics by their admirers—of their own.

Without plunging into a very maze of technique respecting the leading categories of engraving, let it for the moment suffice that most of the hybrid methods bear a kind of mongrel blemish, which, although different, is not unakin to the æsthetic defectiveness noticeable in an "engraving finished" half-tone block, with which readers are, of course, thoroughly familiar.

Turning now to the half-tone process block, whatever may be the extent of its shortcomings, there is one substantial advantage which, at any rate, it can claim.

This is that it is not inclined to either of the extremes of light or of darkness. It has no such predilection as is possessed on the one hand by the line etching, and on the other by the mezzotint. Hence there is no constant, and partly unconscious, accumulative falling away in faithfulness of translation. Such fluctuations from the ideal pictorial paraphrase as befall, center round the mean of the scale of tone, and such departures from the normal as chance, are as often in the direction of darkness as of light. Hence there is, as regards exaggeration of chiaroscuro, no risk of an acquired defect becoming fixed as a natural characteristic.

This comfortable assurance, that the middle passages of tone are safe when expressed by the photo-mechanical block, would compensate for many other defects. Fortunately, no such compensation is called for.

It is none the less true that the phototype has been mercilessly attacked, because—more particularly when employed to copy manugraphic portraits—of its alleged inadequate rendering of roundness or relief, such, for instance, as are displayed on the face or arm in pictures of women possessed of youth and beauty; and disparaging comparisons have been made in regard to this so-called failure between the photographic and the manugraphic rendering. All such strictures have, however, originated with those who are interested in the line engraving, and have hence become accustomed to consider its false smoothness and its grossly distended depiction of objects in relief as correct; whereas, the educated connoisseur knows perfectly well that the engravers' so-called improvements only result in painful distortion. As a matter of fact, the very inability of the photo-process worker to heighten the effect of roundness in an original which is being reproduced is not a drawback, but a veritable blessing.

In conclusion, let me add a few words respecting the broken, or what is termed enfeebled, rendering of lines by half-tone. In the first place, lines are infinitely better given by the photo-tone than by pure mezzotint. Take, for example, "The Pastor." At a cursory inspection—although the screen used is not a fine one—the lines are apparently without break, and seem to enjoy an almost full measure of intensity.

The foregoing, and other considerations which cannot now be dwelt upon, indicate that, so far from the half-tone process being palpably inferior to the finer art crafts of line etching and mezzotint, it is, in many respects, a superior and surer method of picture reproduction. And so let the process worker cease from the Uriah-like humility which seems to pervade the ranks, and, putting on a legitimate pride, strive to exhibit the remarkable pictorial possibilities latent in his craft. Let him not be so prone to look for the criterions of perfection amongst the more or less hurriedly produced blocks, made from pot-boiling sketches, and raced through a machine to the accompaniment of rotten paper and bad ink.

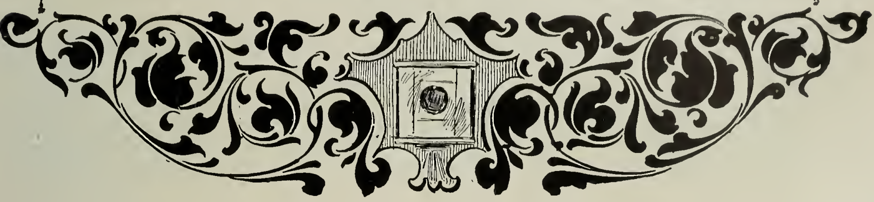
What the process worker who believes in the æsthetic possibilities of his craft should rather do, is to measure his work with the finest of similar printing effects which are hand-produced.

Apart from the pulling of proofs, the machinery, ink and paper are, under nearly all circumstances, quite beyond the control, and assumed to be justly beyond the purview of the process worker.

But if he be ambitious, not only should he make his own blocks with untiring striving for artistic and technical excellence, but he should also be responsible for the printing.

Depend upon it, so soon as there arises an earnest and a masterful man, who, taking the half-tone block as his basis, will work it for all that it is worth, as an exponent of the most refined class of pictorial art, then will it be found that prints by the half-tone process need not shrink from appearing in the very best company of monochromatic reproduction methods. The preliminary qualifications which such a man requires are taste, the artistic temperament and a fine command of technique. Given these desiderata, there should follow fame for the man, and for the photo-process the attainment of a rank not inferior to most of the various manugraphic reproduction methods.

SOCIETIES



THE exhibition of photographs given by the Camera Club of New York, at its new rooms, 3 West 29th Street, during the latter part of May, was well worthy the attention of all lovers of photographic work. A large number of the members were represented on the walls, the collections in all cases being neatly framed and grouped, and presenting an effect of harmony not often seen in so many subjects.

The quarters of the Club are most admirably adapted to their purpose, being large and having ample locker and darkroom accommodations.

THE Fourteenth Annual Meeting of the Providence Camera Club was held on the evening of June 7th, with the President, F. P. Wilbur, in the chair. The report for the year showed ninety-five members belonging to the Club, and a condition of prosperity existing which threatened to over-fill the present accommodations for room.

Officers for the ensuing year were elected as follows: President, Fred. P. Wilbur; Vice-President, William Penn Mather; Recording Secretary, A. F. Manchester; Corresponding Secretary, J. E. Davidson; Treasurer, Edmund A. Darling.

THE Annual Meeting of the Haverhill Camera Club was held on June 14th, and the following officers elected for the ensuing year: President, William H. Curtis; Vice-President, Charles W. Glines; Secretary and Treasurer, Alfred E. Collins.

THE following new clubs have been organized since the last issue of the BULLETIN:

The Winnipeg Camera Club, Winnipeg, Man. Patron, Hon. H. J. McDonald; Patroness, Mrs. H. J. McDonald; President, R. J. Campbell; Vice-President, J. Carter; Secretary, Sydney Smith; Treasurer, F. W. Gill.

The Trenton Photographic Society, Trenton, N. J. President, Samuel S. Weber; Secretary, Grant Castner; Treasurer, Fred. P. Aitken.

The Brooklyn Camera Club, 17th Ward, Brooklyn, with suite of rooms at No. 825 Manhattan avenue, the officers being George Griffin, M. D., President; J. C. Smackenberg, Vice-President; H. B. Smith, Secretary, and Wallace Tiebout, Treasurer.

Our Reviewer.

THE PROCESS YEAR BOOK for 1898, edited by William Gamble, published by Penrose & Company, London, is before us in a new cover, and presents, as always, a very attractive appearance. The illustrations are many and of varying kinds, but of excellent quality throughout, and the letter-press and technical excellence of the volume place it ahead of its predecessors. The only lack of harmony existing in the volume seems to us to be apparent in the full-page illustrations, where the captions and explanatory notes often obtrude themselves too forcibly upon the attention.

The book is of interest and value to all interested in process work.

"PICTURE RIBBONS," an exposition of the methods and apparatus employed in the manufacture of picture ribbons used in projecting lanterns to give the appearance of objects in motion, by C. Francis Jenkins, Washington, D. C., is a sixty-page volume, treating with the development of the art of chrono-photography and its practical application to a variety of uses, as well as its availability to the ordinary photographer. Price, $5.

THE INTERNATIONAL ANNUAL OF ANTHONY'S PHOTOGRAPHIC BULLETIN, Vol. XI, for 1899, is now in preparation, and bids fair to be of better quality and interest than ever. Promises of articles and illustrations are coming in rapidly, and the copy so far received "sets a very sharp pace." This publication is always looked for by the photographic fraternity with interest, and we opine that Vol. XI will be no less welcome than its several predecessors.

"HAND BOOK OF PRACTICAL PHOTOGRAPHY," fifth edition, by Dr. E. Vogel. This interesting little book, intended mainly for beginners, and published by Gustav Schmidt, Berlin, can be recommended to all who prefer the German language.

FROM the well-known publishing house of Gustav Schmidt, in Berlin, we have also received *Praktikum der Wissenschaftlichen Photographie*, by Dr. Carl Kaiserling, a very elaborate work on photography in its various branches, including the latest improvements and inventions. It is to serve as a guide for the more advanced amateur, but will prove of equal value to the professional photographer. It is published in the German language. The price is, marks 8.

THE ILLUSTRATED CATALOGUE OF THE ROYAL PHOTOGRAPHIC SOCIETY'S INTERNATIONAL EXHIBITION at the Crystal Palace, 1898; published by the Royal Photographic Society, London, England, and edited by Mr. R. Child Bayley, is before us, and is worthy a more extended notice than our space will permit. This book is a sumptuous volume of 228 pages, 6½ x 9½, admirably printed on heavy coated paper, and profusely illustrated with a photogravure frontispiece and numerous prints by direct photography and many of the processes. It includes, beside a full catalogue of the exhibition, a number of articles treating of the early history of photography, and biographical sketches of many of the early workers. It is a valuable addition to the library of any one interested in photography, and a credit to its publisher and editor.

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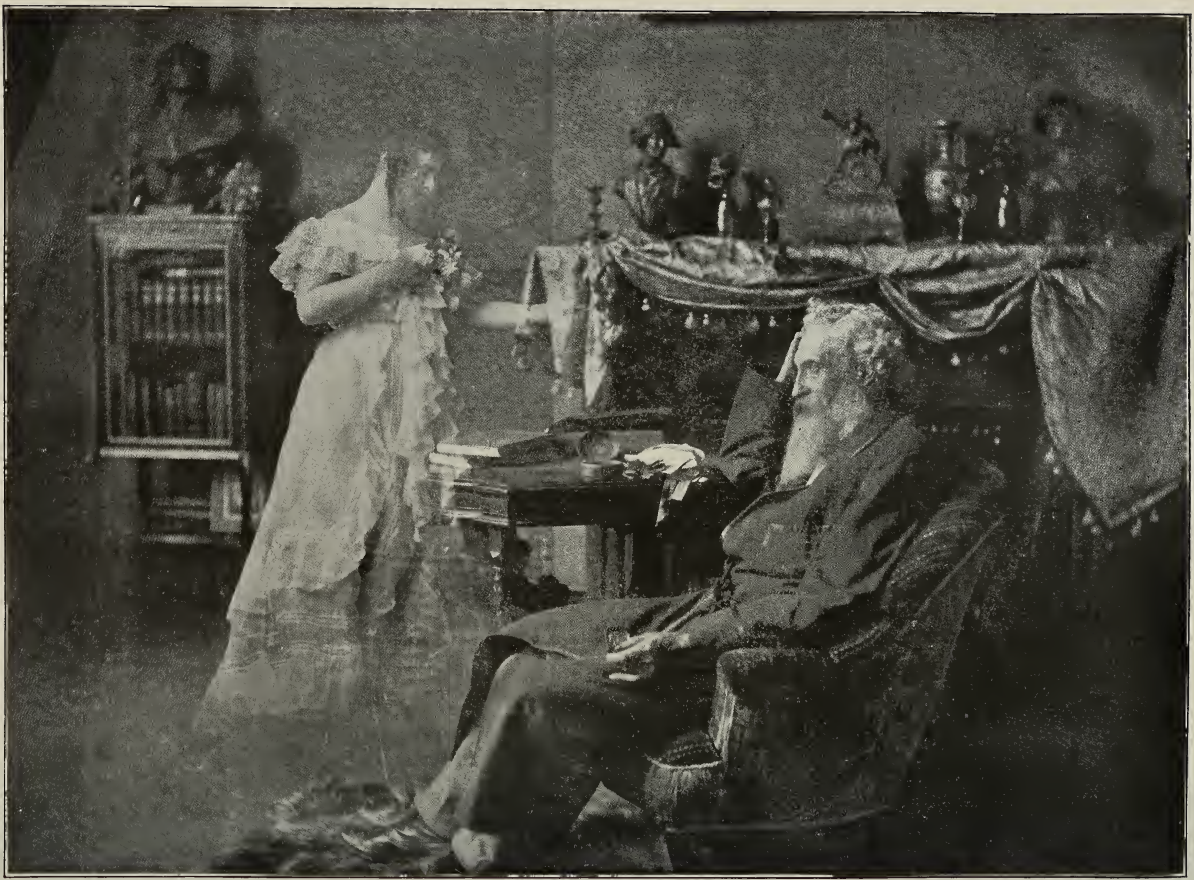

Photograph by G. MOSES & SON.

"'TIS BETTER TO HAVE LOVED AND LOST
THAN NEVER TO HAVE LOVED AT ALL."

AWARDED SILVER MEDAL IN GENRE CLASS, SOUTHERN
DIVISION, AT EIGHTEENTH CONVENTION OF PHOTOG-

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.

W. I. SCANDLIN.

VOL. XXIX. AUGUST, 1898. No. 8.

THE EIGHTEENTH NATIONAL CONVENTION.

THE Convention of the Photographers' Association of America, just held at Celoron, was notable in several ways and marks a long step in advance over any previous convention. The wisdom of the Committee in cutting down the number of pictures necessary for entry in the several classes was clearly demonstrated, and while, as would naturally be the case, there were some instances of poor workmanship and incomplete conceptions, the exhibit, on the whole, was far and away better than that of last year, which had been conceded to be the best of any convention previously held up to date. In one or two cases pictures were exhibited which came very close to being great, and the results of the criticisms made last year were apparent through many of the exhibits. Another very noticeable thing in the Convention week was the strict attention to business and the enthusiasm displayed by the members in the business meetings and in attendance at the school and through the Art Annex on tours of study. We believe that never in the history of the Association has a greater interest been manifested or more earnest devotion to the higher aims of the profession than during the week just passed, and we predict that the next Convention will see several of the younger men who have not heretofore been known coming well to the front.

The important matter of copyright law was brought prominently before the Convention and a strong impetus given to the work of the Copyright League, who are doing so much in the interest of the profession.

As will be noted by the proceedings in another part of the BULLETIN, important changes in rules governing prize ratings were suggested and finally left in the hands of the Executive Committee for their action. The old custom of holding business meetings in the main hall, where the dealers' exhibits are placed, was resumed to great advantage. Perhaps

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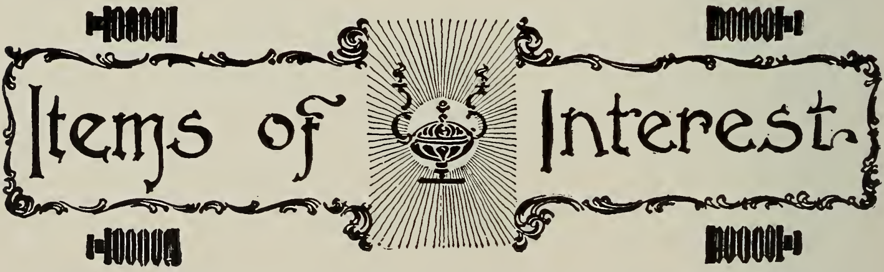
the most unexpected business of the Convention was that of selecting Celoron as the site of the next year's meeting. Strong bids were made by Milwaukee, St. Louis and Put-in-Bay, but when Celoron was suggested by one of the western members, who viewed it purely on its merits and adaptability to the work of the Convention, it seemed to be a foregone conclusion that it would be selected for the next meeting, and the first ballot gave a very large majority, which was at once made unanimous. It will, perhaps, be regretted by some that another section of the country was not selected for this meeting, but the consensus of opinion of those present was overwhelmingly in favor of the present site. In view of the advance made during the last three years and the increasing enthusiasm and interest of members, this opinion seems to be justifiable, and the verdict of the majority must be accepted.

THE OFFICIAL REPORT.

IT will be remembered by readers of the Bulletin that a full official report of last year's Convention was published in its pages within two weeks from adjournment of the Convention, which feat, we venture to say, was not approached by any other photographic journal. The many expressions of appreciation which the Bulletin received have prompted it to repeat the service this year, and in the following pages will be found a complete report from the official stenographer's notes of each day's proceedings. The Bulletin takes pleasure in presenting this report to its readers in its entirety, that they may keep in touch with the proceedings from day to day, thus keeping the context, and not have to depend upon curtailed reports or extracts of proceedings, which are oftentimes misleading. We feel sure that they will recognize and appreciate the spirit of progress and enterprise which prompts the Bulletin in this, as in other cases, to do its best to serve its subscribers.



Items of Interest

A PHOTOGRAPHIC exhibition, under the auspices of the photographic section of the American Institute, will be held in connection with its sixty-seventh annual fair, in the National Academy of Design, New York, from September 26 to October 8, 1898. A large number of classes will be open in competition. In all of the classes any printing process may be employed, and pictures made of any size. No distinction will be made between amateurs and professionals. The judges appointed for this competition are as follows: Messrs. Charles I. Berg, William M. Murray and W. M. Hollinger, representing photographers; Messrs. J. Carroll Beckwith, A. N. A., and A. T. Bricher, A. N. A., representing artists; and Edward Bierstadt, representing the photo-mechanical line of work. Entry blanks and full particulars may be obtained from J. W. Bartlett, M. D., 149 West 94th street, New York.

◆

THE forty-third Annual Exhibition of the Royal Photographic Society (England) will be held from the 26th of September to November 12, 1898, in the gallery of the Royal Society of Painters in Water-Colors, London. Foreign exhibitors are invited to contribute, and their entries will be hung without charge for wall space, if accepted. Medals will be awarded, and the list of judges is a guarantee of good faith. Full information can be obtained from Colonel J. Waterhouse, I. S. C., Secretary, 12 Hanover square, London, West, England.

◆

THE fifth annual convention of the Indiana Association of Photographers will be held in Indianapolis, February 28, March 1 and 2, 1899. Exhibits will be received in twelve classes from members of the State Association. A special prize is offered to photographers outside of Indiana, no entry fee being charged for competition in this class. Entry blanks and full information may be obtained by addressing the Secretary, W. O. Niceley, Bloomington, Ind.

◆

PHOTOGRAPHERS will watch with interest the suit which has lately been brought under the copyright law by Mr. Charles E. Bolles, Secretary of the Copyright League, against Harper & Brothers, to recover damages for the alleged violation of copyrighted pictures by the plaintiff. Mr. Bolles asks for $30,025 damages, to cover the value of the plates, the sheets printed from the plates, and the sheets remaining in the possession of the defendant at the time of suit being brought.

◆

IT is reported that a new record has been made in rapid photography, and that a member of the Paris Academy of Science now holds the palm for this work, he having successfully photographed the periods of the Hertzian oscillation, which occupy less than the five-millionth of a second. The best achievement in this line heretofore is believed to have been made by Professor Boys, whose photographs of bullets in their flight are widely known.

◆

THE Second Annual Convention of the National Photo-Engravers' Association is to be held in New York City, August 11th, 12th and 13th, and a large attendance, representing the photo-engraving establishments of the United States, is expected. It is understood that the meetings of the Convention will be held at Long Beach.

CONVENTION NOTES.

PROFESSOR GRIFFITH, in one of his criticisms before the Convention, not reported in the official notes, said, referring to a picture by Schumacher of Los Angeles, "I would rather have the honor of making that picture of a child than to have the diamond badge. I say this with no disparagement to Pirie Macdonald, whose picture is a magnificent thing. You people who have read of London aristocracy will admire the magnificent qualities of Pirie Macdonald's figure. It is grace personified, the suggestion of elegance, the suggestion of aristocracy and an aristocratic woman, who realizes what she is and who she is—she steps like a queen, she walks like a woman who realizes her position in life. When she posed for the picture the drapery which falls over her hand did not fall that way; the artist was smart enough to put it one side so you would see the turn of the waist, but so as not to make too full an effect. It is a beautiful thing, and I would not take one jot away from it in the way of its excellence; but here in this child picture is innocence personified and simplicity of face. It is a beautiful model, daintily and elegantly carried out. Whoever it belongs to I want to say to him, make more like it."

◆

A VERY tender tribute to the memory of Mr. James Landy was paid by Mr. F. M. Somers, who succeeds to Mr. Landy's studio, in the sending to the Convention of a set of prints made from Mr. Landy's noted series of negatives illustrating the Seven Ages of Man. These negatives, which were made twenty-three years ago, and on wet plates, are truly masterpieces, representing not only thought and study in composition and arrangement, but great depth of insight in the selection of models. When the difficulties attendant upon photographing in those days are considered, the achievement of Mr. Landy takes on a magnitude which gives warrant to the claim for him, that he was a leader in his profession.

◆

WHILE the attendance at the Convention of this year was not as large as that of last, it is said to be a fact that the number of photographers was considerably in excess of last year.

This goes to show that the interest is not lagging and that those who come are actuated by the desire to acquire information which can only be obtained at the Convention. Professor Griffith's able criticisms, the opportunity of comparing notes and studying the exhibits in the Art Annex, and the incomparable advantages of the School of Photography, are evidently appreciated at their full value by those who have had any experience with them.

◆

A NOTABLE feature of the Convention, and one that reflects great credit on the officers of the Association, was the promptness and smoothness with which the business of the Convention was conducted. The fact that all the pictures were hung and that the Art Annex was in perfect condition the first thing Monday morning before the opening of the Convention was a presage which was made good in all the subsequent business of the week. The Association owes much to its officers, who are under a heavy strain, and whose services are so cheerfully and untiringly rendered.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

OFFICIAL REPORT.

First Day—Morning Session.

THE Eighteenth Annual Convention of the Photographers' Association of America met in Celoron, on Chautauqua Lake, Tuesday, July 12, 1898, and the business session was called to order by the President, J. Will Kellmer, at 11.30 A. M.

President Kellmer: "The first meeting of the Eighteenth Annual Convention is now in session. As a sort of prelude, I should like to ask the ex-Presidents of the Photographers' Association of America to come upon the platform.

"I am very sorry to announce that the Honorable Porter Sheldon, who was to give the address of welcome, is indisposed, and could not possibly come here, but he has kindly sent a letter, which the Secretary will please read."

Secretary Sperry: "The letter reads as follows:

"Mr. J. Will Kellmer, *President Photographers' Association of America*,
"Jamestown, N. Y.:

"My Dear Sir,—I regret exceedingly, on account of indisposition, to be unable to fulfill my part of the programme this morning, but it must be apparent by this time that your Association is most welcome to the shores of Chautauqua.

"I trust that the present meeting may be fully up to all expectations in the way of social enjoyment and education, and all may return feeling physically and artistically improved by the short sojourn among us.

"We are particularly anxious that this should be the case in this meeting, as I understand other hospitable sections of the country have extended cordial invitations for the honor of your presence for the following year; and while we wish each and every member of your Association to feel that they will be four times welcome to return the fourth time, we are not so selfish as to insist upon your depriving yourselves of the cordial reception that awaits you elsewhere; and in event of your so deciding, we shall feel that the unprecedented act of your Association in selecting Chautauqua three times consecutively, and practically unanimously in each instance, has been an honor we can well be proud of.

"In conclusion, if in the future it ever appears to be to the best interest of your Association to return to this vicinity, permit me to assure you that I express the full sentiments of our citizens when I say that you may always be certain of a warm and appreciative reception.

"Congratulating you on the fact that, notwithstanding three years of the most disastrous times known to the photographic fraternity, your last three conventions have been among the most successful in the history of the Association, and thanking you again for the triple honor conferred upon us, I am

"Cordially yours,
"Porter Sheldon."

President Kellmer: "On behalf of the Association, I would say the Secretary will send a letter of regret to the Honorable Porter Sheldon that it was impossible for him to come here, and that we are very much pleased to receive his letter.

"The roll call of members is the next order of business. If the Convention says so, we will dispense with that, as it is a very lengthy thing. The minutes of the previous meeting, without dissent of the Convention, will be dispensed with.

"We will hear the report of the Treasurer and Secretary for the preceding year."

Secretary Sperry: "Report of the Treasurer of the Photographers' Association of America for 1897.

"Cash receipts:

Balance received from C. H. Hayes, Treasurer		$1,171 57
Membership for 1897, 135 members, at $5	$675 00	
Dues for 1897, 558 members, at $2	1,116 00	
Membership for 1896, 19 members, at $2	38 00	
Received from Hetherington Scenic Company, space for 1896	30 00	
Pins sold at Convention	1 00	
Rent of floor space	1,570 50	
Desk and tables	302 00	
Received by ads in Constitution	240 00	
		3,972 50
		$5,144 07
Disbursements	$3,233 67	
Balance		$1,910 40

"The Secretary's report is really embodied in this one just read and is simply that the cash received for space is $1,570.50; for desks and tables, $302.00; sent to the Treasurer, $1,872.50."

President Kellmer: "Next business is the reading of communications."

Secretary Sperry: "I have a communication from Percy King, of New York, as follows:

"Mr. President and Gentlemen: I regret exceedingly my inability to be with you. I wish the Convention the best of success. To those who are trying for prizes that they may all win and go home happy and smiling. To those who are not trying, that they may go home determined to come next year and win everything in sight. To the ladies, that they may all have a most enjoyable time, and that all may feel fully repaid for attending. Success to you all.

"Hoping to be pleasantly remembered by you all, I am

"Yours, etc., PERCY KING."

President Kellmer: "We will proceed with the programme. I have great pleasure in introducing to you this morning our dear, good friend who always entertains us so nicely, Professor A. H. Griffith." (Applause.)

A. H. Griffith: "Mr. President, Ladies and Gentlemen—They tell me that I am usually in a good humor, but if I am a little bit trying this morning and disposed to give an extra stab, remember that I am suffering with a boil in the middle of my back. They say that Job had boils, but he did not live in 1898, and have other things to contend with as well.

"'There is nothing new under the sun.' That was said a thousand years ago or more, and it is equally true to-day. Men have been thinking, and writing, and speaking, for the last three thousand years, and you can find it in the books of the libraries. Now, I would not waste time or a single cent in trying to think out anything new for myself. I would simply steal the thunder of other people, and you will find in those old books more things that have been forgotten than you will ever dream of in the next ten thousand years. We are simply moving in a revolution We reach a certain standard of height and then we take a decline. This is the history of every nation and every people, of every invention, of every improvement, and of every particle of civilization in the world. The American people are now on the upward move, and there is before you the whole world to conquer, in Art, Science and Literature, and in every human achievement, and then we will reach a climax and go down, but that downward movement is yet hundreds of years away from us. It is so in photography, and you may prove it by the work that is stretched out through the galleries. The work of this year is superior to that of last year as that of last year was immeasurably superior to that of the year before. There is yet an immense achievement before you. The thing is to put brains into your work, to know what a picture is, to know what makes a picture, and to put more poetry and human sentiment and human pathos in it and then it will live. I think that Shakespeare, if I could but quote you the exact words and lines, had in mind the photographers of 1898 when he gave his advice to the players, 'I hope you will mouth not these things like some actors whom I have heard called great, but suit the action to the word and the word to the action. If you do not this thing I would as lief the town crier spoke my lines.' I see through those pictures an immense amount of thought. I see there now and then a picture that tells me a story, and remember that as I once stood talking with Hermann, the great magician, a man whose brains and fingers and thought all seemed to act together like clockwork, he was watching one of his employees do a simple little trick on the stage. There was machinery attached to it, and suddenly there grated on our ears amidst the stillness of the house a creaking of a part of the machinery. Hermann turned on his heel with a flash of his eyes, which you see and always remember, and with an oath said that no man had a right to go before the people and lose the whole thing by one little false creak. There are pictures up there that are full of sentiment; they are full of thought that tell you the story, and there is one abominable something that comes in and grates on the whole nervous system and makes you feel as if you would like to get hold of that man and give him a shaking and tell him never to do such a thing again.

"Now you are here to learn something, and as I said to you before, fault finding is not criticism, nor is criticism fault finding. People damn me most gloriously, and I begin to look around and find out how much truth there is in it. Is there a little bit? If there is I will try and adjust myself and get over that little bit This whole life is one of progress. We simply take up where the other man left off. We steal their thunder and are very much the gainers by it. You people who have read the photographic magazines of the last few weeks will find that they had spoken of me in the most unflattering terms in Iowa. I believe I was called a Spaniard, and all sorts of unkind things, and yet I have an invitation to go back. (Applause.) The truth may sting, but it is always wholesome. I believe you make a mistake by patting people on the back and telling them what grand things they are doing."

Mr. Cramer: "It would not do to pat you on the back with that boil there." (Laughter.)

Mr. Griffith: "I believe, Mr. Cramer, I would want to fight. We talk of the harm of drink in this country. We talk of the young men who are going down in degradation. Let me tell you one thing. There are more young men going down to disgrace and destruction through the false approval of unwise friends than through all the drinking in the United States. I find young men and women patted on the back, and told that they are marvels, and that they 'have genius.' Do you know, that word genius is the most abused word in the English language? In twenty centuries you can name on the fingers of your two hands the geniuses in art, literature and science, less than one for each century. I do not expect to find one in my lifetime, and yet fifty times in the winter I am called into school to see a genius. I am afraid of them as the Devil is of holy water. (Laughter.) People say 'See what is done by this young man who never had any instruction.' Great God, if you cannot use the voice and hands of somebody else, then let Nature be your instructor, but be a pupil of some thing or somebody. A young man brought me a picture the other day, and said he had brought it to put into the exhibition. I told him we were pretty full, all the places were taken, and that I was sorry he did not come sooner. I did not like to hurt his feelings. He said, 'You have got room up there.' I replied that we did not hang anything over the doors. He said he would like his picture to go in, adding, 'I am a young man and I want to have a show.' I said, 'We cannot put you up there. It is not a compliment to you to be hung high or low.' 'Why do you not tell me my picture is not good?' I said, 'Do you want me to tell you what I think of your picture.' Then he said, 'But you must bear in mind that I have not had any lessons.' I said do you want me to stand before that picture and say, 'This man has done some good and some bad things, but he has not had any lessons,' I could not do it. Go away and teach yourself under somebody or some thing. You have a little ability, but do not try and exhibit until you have some thing to show the world. I find young men and young ladies—now do not think me ungallant. My mother is a woman, and I have two sisters, and I have a nice girl some place—but people waste the most time doing things that are pretty because they have the most time. They are not any more foolish than the men, but they have more time, and I see flowers painted that are like leather. There is not a particle of perfume in the whole of them. Flowers are as individual as faces. Every rose on the bush has an individuality and a character and a personality, and you must understand them before you can ever paint their dewy fragrance, before you can ever give to them one touch of perfume, before you can make them look as if they would evaporate under the sunlight—and yet people paint flowers. I wish they would make bread and cakes, or sew, or go and visit their friends and not thrust themselves on the public. Why the pictures that are brought up to some exhibitions are something to make us cringe. I believe that the old days of hermits were caused by the abominable things that were brought to pass day after day, and they went and hid themselves somewhere in a cave to get rid of them. A picture must have something of the soul of the man in it. If you do create a little composition, study until you get a thorough impression in your own mind, until you find out what it is that you wish to tell, and then tell it in the most simple and direct way, but give it in such a way that it catches your fancy, that it pleases you, and then if it is great in one sense it will certainly be great in another. You can make it great in the sense of composition, great in the sense of color, because there is color in black and white. You can make it great in the sense of its simplicity, by its marvelous light and shade, and just here I want to speak of the value of another thing, and that is white. Do you know that white in art is worth a $1,000,000 a pound, and yet you people spread it out as though you had it to spare like the Man that runs the universe. White is the extreme limit on one side and black on the other, and white is always whiter by the side of black, and it sparkles all the more brilliantly because you have less of it, and when you have once reached white in your picture you can never go beyond that. Remember that that is the end. All artists and masters understand that, and they understand that they could pile shade into their pictures, and make them rich in purples and blacks, but when they reached white they showed just one spot of white and that was the end. They never could go beyond it. The Man who makes all this marvelous country, who makes these marvelous and wonderful faces, and all these things that I see impressed in these faces day after day, He is unlimited in his powers and resources. You are not. You have but the one limit at one end and the other limit at the other end, and you must work in between. Rembrandt, your patron god, understood thoroughly what he was about there in the old mill on the Rhine, when that one window lighted up its darkest depths, and there came a golden halo through that window, a golden charm that lit up the faces of his mother and father and friends and the people who came in, and he caught that golden charm, he filled his pictures with its rich, warm, brown shadows and yet while they were luminous with light, they never were absolutely white. He loaded up his canvasses with all these glorious colors and yet he never used white, absolutely pure and simple. You cannot find it in a single picture he ever painted, because he really understood the value of white. I hear some men say, what of Reed of New York. Robert Reed who paints these marvelously beautiful things that are all shimmering with light and the colors of the rainbow. There has been one Reed in four hundred years of American history, and one Reed in a thousand years of art. I do not speak of him as the greatest man, but he handles light colors, and yet I defy you to find a single picture in which there is one absolute touch of white pure and simple. His pictures shimmer with light; it is a painting of sunshine on the water where blue, pink and purple seem to shiver through every figure, but never white, because he knows that that is the limit of all he can do. Queen Elizabeth said there was no shadow in her face and wanted both sides painted alike, and two of the greatest artists in England were told to paint that face, and paint it on both sides alike and they did, but it was through trickery. All art is trickery. You hear people say, 'Why art is holding the mirror up to Nature.' Not so. Never fool yourselves with that sort of rubbish. Art is trickery pure and simple. You simply catch a gleam of Nature, a gleam of the face before you, then by the most simple and direct means you transfer it to canvas and get me to see that it has a little semblance because you have tricked me into it.

"There has come from your finger tips a little of the genius that makes great music, and the sea beyond it quivers and is full of sunlight, but put it out into the broad light of day, side by side with Nature, Nature, the most lavish in her colors, with her glorious sunsets—yet she allows them to please you but for a few moments—constantly drifting and changing from one color to another, how one tint passes into another until at last the curtain of Night comes down and is pinned with a star and you are left in wonderment and amazement. It is the lavish extravagance of the person who has everything at his command. Not so with you. You catch a little of the sunlight—a little of the marvelous color—and, by contrasting it with the dark colors, you can command and hold them, then you make me believe that it is a little of the sunset that God has placed out there. Our study pure and simple is—first, composition, then outline, and then the mass of light and shade, and when you have combined those three things with the fact that Art is idealism of the real and realism of the ideal, then you will make a picture. Gaspard, the great landscape painter of France, said he spent as much time rubbing out what he did, as putting it in, simply because he knew he could make his pictures better. I want to get these background painters in here where I can talk Spanish to them. You have done marvels in the last two years, but you are still on the wrong track; you are selling to the photographers of this country some abominable stuff (applause), simply because those men do not know the requirements and their capacities, and yet, on the other hand, I find the most marvelous qualities in your backgrounds. You say you make them to sell. Do you know the people will always come up to your level, and if you make better pictures you cannot sell the poor ones. Make better backgrounds and the others will all go into the garret. Look at the pictures of Rubens, and a hundred others I could mention. See what marvelous things they bring out with their backgrounds. To-morrow I shall take up a few pictures and criticize them, only from the point that I see them, and I do not ask you to believe everything I say. I will try and point out to you the things I see in them. If I am a little bit right, study it over in your own mind and improve on it. If I give you one single thought that will be a benefit to you the coming year, I will feel that I have fulfilled my part of the contract. I am brought constantly in contact with pictures everywhere. You people who make pictures sometimes want to go away in a room by yourself and never see the picture again, but it is only for an hour, and then you go back again, as a musician goes back to his harp or piano. I know a gentleman who paints pictures. After painting a week on a portrait he will turn it to the wall, and say, 'I never want to see it again. There is something all wrong with it. It is too full of color or it lacks color.' The truth is, the man has his eye full of color and he cannot see. Go away, get out of the rut, and then go back to it with renewed ideas, better eyes and renewed vision, and then you will be able to finish it. It is so with the finest exhibitions. We are such a blind lot. I can see things that I did not see a year ago. I begin to think that I do not know my eyes. A lady was visiting Paris. The Empress Eugenie said to her, 'How long have you been in Paris!' She said, "Three weeks.' "Have you seen much of Paris?' 'Oh, yes; I have seen it all; I have been to the Champs de Elysées, the Luxembourg, and all the notable places of the city,' calling them by name. Empress Eugenie replied, 'I have lived in Paris thirty years and I know nothing of Paris.'

"I have been trying to see pictures for fifteen years and I am just beginning to see pictures—I am just beginning to realize what pictures are like. As I said to you at first, 'There is nothing new under the sun.' In the pyramids of Egypt within the last year they have found evidences of a telegraph line. What do you think of that? In Egypt there is a method of sending messages which the British Government has never been able to get hold of. The British send their telegrams to their outposts, to their forts along the coasts, and long before they get to their destinations the contents of their messages are known. How do they do it? There is some method of telegraphy known to the sons of the desert, and in a similar manner we are just on the verge of great things in photography. One picture comes to my mind in the collection out there (in the annex), which is on the border line of greatness, and it just fails, like a man walking on a tight-rope who totters and falls on the wrong side of the rope. It is a marvelous picture with a marvelous subject, and a dead failure. You wonder how that can be. Simply because the maker lacked that one touch of genius that makes the whole world kin. I thank you." (Applause.)

President Kellmer : "The next business is my own address, which I will read."

PRESIDENT'S ADDRESS.

"Ladies and Gentlemen and Members of the Photographers' Association of America : To greet this body of intelligent workers and bid them welcome to this, their eighteenth annual Convention, is an honor I fully appreciate and shall always hold in grateful remembrance.

"In bidding you welcome to the classic shores of Chautauqua, I wish I could impress upon your minds more fully the great value and importance of your work and the bearing it has upon this age of progress. You represent the most enlightened nation upon the globe, whose high standard of intelligence is the wonder of the world, and in that development photography has been a most important factor.

"We shall miss some members who have been in the habit of attending, but, in their absence, we glory in the fact that this body is represented in that heroic army which proclaims to the world that there is one nation that dares to wage a war in defense of the weak and oppressed.

"The labor of handling and classifying an exhibit of this Association can be known only to those who have had the care of one. In order to avoid the delay and confusion that late entries have caused heretofore, your Executive Board have insisted upon an early delivery of exhibits. I want to thank you all for the very hearty and prompt manner in which you have responded to this call for our help. We take a great deal of pride and pleasure in the fact that upon the morning of the opening day of the Convention your exhibits were in complete order and ready for your inspection. Cutting down the number of sections required for entry has increased the average of excellence, placed all upon a more even footing and has given a better opportunity for artistic arrangement. Believing that it has been fully proved that there can be art in photography, the old system of marking for posing, lighting and chemical effect has been discarded, and the judging done on broader lines. Technical excellence must be obtained, but the worker will be given credit for the knowledge he puts into his work.

"To most of you it is known that there is a Copyright League, composed of photographers, which is at present endeavoring to defeat legislation that will give publishers the right to the use of our products without any compensation or legal reparation. The gross injustice of this is apparent to all. There is urgent need of immediate action in this matter. The Association would be glad to entertain a motion for some written resolutions, to be signed by all members, endorsing the League and its work.

"I want to call your attention to the superior excellence of the exhibit now in the annex over that of last year and of two years ago. It emphasises the fact that we are a progressive people, and that photography will soon occupy that position among the arts and sciences that her capabilities entitle her to." (Applause.)

President Kellmer : "I will introduce to you Mr. George G. Rockwood, who is the Vice-President of the Copyright League. He would like to speak to you a few moments on this subject, and I hope you will give him your attention and take some action on the subject."

Mr. Rockwood : "Ladies and Gentlemen—I congratulate you upon the address you have just listened to from Professor Griffith. If you heed his suggestions you will find your work enhancing in value, and will want some way to protect it and protect your ownership ; that is the object of the Copyright League.

"I am not going to give a dissertation upon law or upon the acts of Congress, and will be just as explicit as possible and state to you some of the facts concerning the status of the copyright law in this country. The shortest way to get at it would be, perhaps, to give you, in as few words as possible, just what is contained in the various copyright laws. You will be astonished at the outset that the press of the United States—I will not say the entire press—but a portion of the press, is attempting to take away every possible right and ownership that you have in your work. I can tell you, in a few words, what these bills are. The Shafroth bill provides, 'That a photograph as such, made from any object not a work of the fine arts and not an illustration in any regular publication,' which is duly entered at the Post Office at its place of publication, shall not be the subject of copyright at all. You realize what that means. The Hicks bill provides that line copies of photographs, in the daily newspapers, not the work of the fine arts, shall not be considered as a violation of the copyright laws. I want to say that Mr. Hicks was not responsible for that bill. He is the chairman of the copyright committee in Congress, and if his constituents or any body of men send a bill to him and ask him to introduce it, he is in duty bound to bring that before Congress or before his committee. He very quickly saw what this bill was, and turned it down and said he would not endorse it. I say this in justice to Mr. Hicks. The Shafroth bill says the photograph shall not be subject of copyright, but gives such right to publishers who are not the owners, and without the consent of the owner. The Hicks bill seeks to give to the daily newspapers the right to reproduce and print copyright photographs without credit or payment to the photographer who makes them. We have had in Washington representatives of the Copyright League, principally Mr. Falk, Mr. Bowles and myself. We have had to watch this bill there which was about to be brought before the committee. It was backed up by the illustrated press. There was danger, although it is certainly an unconstitutional measure, and of course at the end of a tremendous lawsuit we could have beaten them, and it would have taken an enormous amount of money and years of time, during which they would have been taking our property and using it just as they pleased for their own benefit, and you all realize what that is. What a one-sided affair it is that a man who has a bright thought in the way of a picture, and creates it, should so suffer. A great many of our *genre* pictures are really works of art, like those pictures over there on the wall, and they are made to brighten the home, and it is proposed to take the right to them entirely away from us. Well, Mr. Falk, Mr. Bowles and myself appeared before that committee, and they listened to us with patience. We were told by them the bill would never be reported. Well, there was much friction about it. They kept stirring the matter up. The illustrated papers called us the 'blackmailing crowd.' One of the editors of the *Herald* said that to me the other day: 'Why in thunder do you not get out of that blackmailing crowd?' I said: 'My dear sir, have I the right to take your watch out of your pocket?' He said: 'What has that got to do with it?' I said: 'Just as much to do with it as for you to steal a work that we make. You do nothing but steal it. You cannot call it by any other name but thievery. When you secure a valuable picture why do you secure it unless it is valuable, and if it is valuable and you do not give back a consideration, is it not robbery and theft?' 'Well,' he said, 'If you look at it that way, perhaps it is so.'

"We think we have 'scotched' these two bills; and the Vice-Chairman of the Committee said to us the last time we were there, 'Gentlemen, will you send me a bill that you think is equitable and fair, remembering, of course, that there are two sides to this thing? We want you to recognize the courtesies of the other side and make a bill they will not object to'; so we planned a little bill, and I will give you the points of it. I will not attempt to read the whole bill now. We think we are in a fair way at present to get justice done. This bill provides, in the first place, that everything in the photographic line shall be protected. If under it a picture is published without our consent, without payment or without recognition of the copyright, all the plates on which the same shall be copied, and every copy thereof, shall be forfeited, together with $1 for every copy of the same sold or exposed for sale. In the other law, they tried to say that we would be paid for all copies we could find in their possession. At the close of the edition of the New York papers, they sometimes have five copies and sometimes not a single one, and yet they may print an edition of a hundred thousand. The next point is that the sum to be recovered in any action to be brought under the provisions of this section shall be not less than $100 nor more than $5,000. Now, the purpose of my being here at present is to ask the endorsement of the photographers for this bill, which protects their profession, and I hope our petition may be signed by every photographer here. I have not yet prepared the petition, but I will do so, and bring it down and put it in some prominent place in the building, and I hope you will sign it for our mutual protection.

"I want to tell you about the terms of joining the Copyright League. We sent out an enormous number of circulars last year, at which time we called upon you to pay a definite sum. At a meeting held in February the by-laws were amended to read, 'There shall be no annual subscription, but the working expenses of the League shall be met by voluntary donations.' We would like very much to have the entire membership of this association as members of the League, and if there is any infringement of your copyright in New York, sue without any expense to you. We have counsel there in New York, and he has undertaken this thing for the common cause. We pay him nothing. The suit is taken off your hands and transferred to us, and you get your proper proportion of the money. Now, it is a good deal better to secure an experienced copyright lawyer than for every man to begin suit for himself and subject himself to possible loss. Very few of you know what is the proper procedure in this matter, and it is better to have some man who is in the habit of commencing these suits. The photographers are not a set of paupers; they are a generous, whole-souled class of men. Therefore, we expect you, as a matter of course, to do a little something to help us out. A few of us in New York have borne very largely the expense of this thing. We always have to keep a man on watch in Washington, and we have had to pay him several hundreds of dollars. It is his business to watch these bills and report to us any possible bill and to protect our interest. We shall be very glad, however, to get your names without any money, and we shall be very glad to get any amount of money you want to send to Mr. Bowles, the Secretary, 244 Fulton street, Brooklyn. Anything from a dollar up we shall be very glad to have. Be very careful to protect yourselves. The copyright is a very simple thing. Mr. Bowles has prepared a very elaborate paper here, some copies of which I can give you, but the whole thing may be put in a nutshell. If you want to copyright a picture, have printed (not written) on it 'copyright, 1898, by' (name), with the title of the picture as well; that is all there is to it; and send it with a half a dollar to the Librarian of Congress. Now, that is a perfectly simple process. If you want a certificate of copyright, send a dollar and you have that. You may not get it for three or four weeks, because they have such an immense amount of work. Be sure and have the print copyrighted before any issues of the picture are given out. I know a friend who neglected this recently. He had a picture of Hobson, the naval hero, and because he let some copies go out beforehand he was put to a loss of several thousand dollars Remember to send two copies of the picture with just that form, copyright, 1898 (name), or whatever the year is, and the title under it, enclose 50 cents and send it to the Librarian of Congress. No matter how large or small the picture is, there is no postage on it.

"I thank you."

President Kellmer: "The next business session will be to-morrow morning. To-night we have an entertainment at the Opera House, in Jamestown, given by Professor Buchanan. Your button entitles you to admission to the Opera House."

R. P. Bellsmith: "Before we close the session, there is a little duty we owe to ourselves and the profession at large. I have reference to the fact that one of the ex-Presidents of the Association, Mr. James Landy, a man who, probably, for a longer time than any other man I can think of, held sway as a photographer and an artist of great results, has passed to the great beyond, and I would move you, sir, that a committee be appointed to draw up suitable resolutions upon his death, and that same be conveyed to his family."

Motion seconded and carried.

President Kellmer: "The Chair will appoint Mr. Bellsmith, Mr. Schneider and Mr. Cramer."

Mr. Cramer: "I am very glad the gentleman has made the motion, as I am saved from making it myself. I will remind the audience that the masterpieces of our friend Landy are now on exhibition here. There is an illustration of his here, of Shakespeare's Seven Ages of Man. These pictures created a great excitement at the Philadelphia World's Fair when they were first exhibited, and, considering the difficulties with which pictures were made at that time, having only the wet plates to use, which required a long exposure, the value of those pictures is very much more than it would be for such as we produce in these days, when we have better means. I would call your attention to the fact that those pictures are here on exhibition through the kindness of Mr. Somers, the successor of Mr. Landy."

Mr. Schervee: "I have a resolution to offer in regard to prizes."

The President: "Please read it."

The President: "If you will withdraw it for the present, it will be taken up in order as new business in the morning."

On motion, duly seconded, the meeting adjourned to ten o'clock A. M., Wednesday.

WEDNESDAY, JULY 13, 1898.

SECOND DAY—MORNING SESSION.

President Kellmer called the Convention to order at 11 o'clock.

Secretary Sperry: "The following telegram has been received:

"Greetings: Sorry I cannot be with you. Hope you will have a successful convention and a pleasant time.

"GEORGE STECKEL."

President Kellmer: "We will go on with the copyright affair. Mr. Rockwood has a few words to say on that subject."

Mr. Rockwood: "Ladies and Gentlemen—Yesterday morning I think I misled you in my formula for getting a copyright. I told you all that was necessary was to send two pictures You should do that, and at the same time send a letter, which must be typewritten, the letter containing the title. As I have always dictated my letters of late years I complied with the law unconsciously, and that is the way I overlooked it in my statement to you. I always dictated the letter, saying about this: 'Librarian of Congress—Accompanying please find—money to cover registration of the following named pictures, "The Black Cat," etc., copyright, 1898, and so on. Just simply name it briefly, and that goes at the same time that you send your pictures. I never send postage because I have always had blanks furnished by the Librarian that he supplies. Send to him for them, and he will send you the blanks, and I have never have paid postage, because I always had them on hand. I have not paid postage even when I did not have the blanks, and have always had the proper return. I will look over the law on that subject and tell you exactly what it says."

A Member: "If you take it to the Post Office, they will send it for you without postage."

Mr. Rockwood: "I want to tell you of one instance that happened last week, in my knowledge. A party came into a photographer's in New York and said he would like to have the use of a certain copyrighted picture in his business. He said the photographer could use it as far as he desired, but he desired the use of it, and it should not interfere with the sale of the picture in any way. The gentleman who owned the copyright said: 'What will you give for it? He said: 'What do you want for it?' 'Well, what do you say to $300.' Of course he did not take the first offer. He said: 'What do you say to $250?' A check was signed right there for $250. The gentleman who owned that copyright would have been perfectly willing to have given him the use of the picture, for the advertising if it had come to that point; but for that copyright, which cost but 50 cents, he secured the $250 just like picking it up in the street. He had had an enormous sale of the picture. I tell you this story because it illustrates the point better, I think, than all arguments under heaven. Now send on your names to the Copyright League, so that we may know who you are and can give you advice in case of emergency. The petitions are here. There will be four copies. Will you kindly sign, putting on your names and addresses—please write both with care—and it will not take much of your time."

Mr. Macdonald: "I wish to offer the following resolution:

"'*Whereas*, it is an undeniable fact that the standard of photographic workmanship has advanced materially during the past few years, and the present prize rules will be insufficient to deal with the problems of the next year's exhibition, and that the Executive Board should have the unqualified support of the Association; therefore, be it resolved that a committee be appointed to formulate a new plan and report to this Convention.'"

Mr. Schervee: "I second that motion."

Motion carried.

President Kellmer: "I appoint on that committee Mr. Pirie Macdonald, Mr. John Schneider and Mr. S. L. Stein.

"We have with us this morning a gentleman whom you have all heard a great deal of, and I have asked him to say just a few words to you this morning. Mr. Hollinger, of New York."

Mr. Hollinger: "Ladies and Gentlemen—I am very much pleased to have this privilege. I always like to meet with photographers where ever I go, and I want to say now that I always like to meet them in New York. I have met a great many there and always enjoy their visits. Now, I am glad to be here and to meet with you, because I receive a great deal of enthusiasm and encouragement in these conventions. This is the second time that I ever attended a national convention, but in Ohio I have been in the habit of going for a great many years to our State Conventions, and I always enjoyed them, because we always hung together, and had the privilege of comparing notes, and hearing men like Mr. Griffith tell us what to do. I learned there that if we were going to do anything it was necessary to spruce up and move forward and do something different from what we used to do. When I first went to the Convention in Ohio, I posed as a tin-type artist from Dayton, and I enjoyed that because they did not get any of my time, and I had a chance to go around everywhere and see and listen to other people, and I got a good many points and found out what was necessary. I had got to where a good many photographers get, where some thing had to be done.

"There was no business to do, and there was not any money. We had to live, and I never felt like taking a back seat in anything, especially in my business, so I had to figure around how to get out of this great difficulty, and I am out of it. I want to tell you how you can do it. There are a great many who will say you cannot do what Hollinger is doing in New York. That may be true; but I have learned things in New York which, if I had known them a number of years ago, it would have been a great advantage to me. In these few minutes I want to talk to some purpose, so that it may do you some good financially and encourage you along these lines. First of all, I want to say to you that I attribute a great deal of the success I have now to the fact that I quit knowing anything. I just stopped knowing anything. I went around trying to see what people were feeling in Art. I went to reading art literature and studying pictures everywhere, and everything in the photographic line. I just tried to fill up with the idea of pictures, not with the idea of criticism, but to see what people enjoyed, and why they enjoyed it and what they saw in it. I just filled up with that idea. There is another thing you can learn, and that is the simplicity of the amateur who comes into your place. Do not criticise those people. They are the leaders in simplicity. They are showing us the things we need. We have too many rules. We know too much, and we have too many things we are trying to do. Quit trying and do the things that come to you every minute and all the time without studying at all, and you will get great simplicity. The greatest things come from just doing what comes before you every minute without fixing anything. I never light, I never pose, I never fuss with my sitter, raise the head or the hands, or fool with them in any way, and I get the simplicity of every subject in my pictures. No one ever saw a picture come from my studio that was posed in the least. We do not do any dozen business. I get more for one little carbon picture than the best of you can get for a dozen in your little town. It is not the fault of the people, but of us fools. I can get the price I now get for one carbon print. I got $10 for a dozen in Dayton. I get $10 now for the smallest picture I make, if it is but an inch square. I get it right along. I get $5 for every platinum print, and I do not show any proof. 'I know what I am doing,' I tell them. If you want the picture for $5, take it. If not, leave it. (Applause.) Then I get $3.50 for duplicates. I am just a common fellow from Ohio, and I do not know any more than you do, but I had the courage to go there and do it. I had to do something, and I just went to the highest place I could get and I did it. Let me tell you, you go home and make something of every customer different from anything you ever made of him. If you make a fine negative do not show him but one print, and that the best you can make, and tell him it is a special thing at a special price, and don't you sell it unless you get the special price. (Applause.) Charge for it, and make the people pay for it as an artist does. An artist would be considered a fool who would sell a dozen pictures at the same time because they were good ones. Another thing, we never disappoint a customer. We say, 'Come day after to-morrow for your work finished.' They come in, and we make it a point to have the picture ready for them. I have been in New York two years, and I have the first customer yet to come in and not get his work when we promised it. (Applause.) We were drifting along with a great pack of negatives all the time. The people did not get their work. I have reformed. I said, 'I am going to promise things and I am going to stand by what I have promised.' I went to New York, and I promised people their work and I gave them their work, and now I am beginning to pay the bills I use to promise to pay and could not. (Laughter and applause.) We often get into the habit of being a little behind hand with everything, and it is a miserable habit. Spruce right up and make the people know you are business people. Do not go home and do that any more. Don't add a dollar a dozen ; add *four* dollars to *one*. (Applause.) Then the people will say, 'That must be something better or they would not charge that way for it,' and they will be glad to have it. If you will spruce up and get better prices by making people believe you have better things, you can come to the Convention with a better heart. You go home and try that. These are practical things that can be done, because we are doing them every day. I want to tell you one more thing. I only had five minutes. It is a hard thing for me to talk five minutes to people who are keeping perfectly quiet; when I have got people, I like to hold onto them. Let me tell you this: you go home and make the very best negative you can, and say to your sitter, showing him one nice negative, come day after to-morrow and I will have one of the new kind ready finished for you to see. When they come in you show them one finished. Say to them, 'This one is worth $5. We only make these special. The other kind is worth $3.50 a dozen,' and you will see what luck you will have, and you will say how glad I am I met Hollinger. I will be glad to see you in New York. It is the commonest, simplest, homeliest place you have ever seen where I am. There is no photographic background in it. There is no retouching frame in it or anything of the kind. It will not take you any time to look around. You can come and look at it and see what we are doing. You will be surprised at the customers who are coming in there. I was not able to come here last year, but I am going on a little vacation now. I have nothing to worry about, and I am going home this fall, and I will tell you this, you will hear from us later on. Good morning." (The applause continued until Mr. Hollinger came back on the platform.)

Mr. Hollinger : "What do you want?"

A Member : "Where is your place?"

Mr. Hollinger : "I am up on Fifth avenue above 43d street, in New York City. You can easily find that. You walk up Fifth avenue and you will be sure to find us. Anybody can tell you where we are." (Laughter and applause.)

A Member : "Have you a skylight?"

Mr. Hollinger : "Yes, I have a skylight, and it is an east light. Mr. Rockwood said to me, 'I do not see how you can work an east light,' but I work it and the sun shines in every day; but I make pictures there."

A Member : "Do you retouch?"

Mr. Hollinger : "I am the retoucher of the place myself. I made 85 negatives one day, and the next morning I gave them all to the printer myself, and the next day they were all finished and the people came in and got their work. We haven't a retouching frame in the place. We hold them up in our hands and take out the bad spots and the people like it all right; 'it is so different from the rest, you know.'" (Laughter.)

A Member : "What paper do you use?"

Mr. Hollinger : "We use platinum paper. That is the easiest for us. We are a lazy set of fellows. I have got to the place where I want to get as much money with as little effort as I can, so I use the simplest and easiest thing. You may not be popular with photographers sometimes if you use it, but use that if you want to get along easier."

A Member: "Do you print by electric light?"

Mr. Hollinger: "No, by daylight. There is never a day that we cannot print *one* picture, and you can tell your customer that it will be ready day after to-morrow. Some one said to me when I first went to New York 'Why do you say day after to-morrow; why do you not say a day or two later.'" I came to New York to beat anybody, and I can beat them, when I put it where I cannot very well beat it myself, so I will make Brother Rockwood hustle up to beat it. That is the reason I did that.

"We never say anything about duplicate orders. We get duplicate orders. Christmas time we made single pictures, and we had them all finished by Christmas. After Christmas we had to employ new help to do the work that had been put off by other photographers. A year ago I did the work myself; to-day there are seven of us. After Christmas we had a chance to pick up the fellows the other photographers turned off. We never say anything about money to our customers. We ask for no pay in advance.

"We do not bore our customers about money. We put it on a strictly artistic basis. You do not have to pay for it if you do not like it, and you do have to pay for it if you do. (Laughter.) We make our people believe they have artistic taste; tell them you made it because you thought they had artistic taste. I used to do that in the little town of Dayton. I learned there that it could be done, and I went to New York to do it on a larger scale. I do not make all my duplicates day after to-morrow. I promise to have one picture day after to-morrow, and the duplicates I am under no obligations as to time. As to percentage, I never finish a single picture which would not do for my show case, and I deliver a very large percentage. I have made ten negatives of one family of children; they do not know which one to take; they do not know what to decide on, and I say, 'Take it if you want it, or leave it here,' and they take them. We only work the single plan. We do not have any professional rate, or any minister's rate. It is always $5 or $10 for a single copy and $3.50 for duplicates. We charge $5 for 5 by 7, $10 for 6½ by 8½, $20 for 8 by 10, and so on up. We take $1.50 off of every duplicate of the $5 pictures. A good many photographers have sent friends to me. Brother Sperry sent me a nice order. I am going on to Akron now to see a man. You can all do that for me if you know my price." (Laughter.)

President Kellmer: "Next on the programme is Professor Griffiths, who will speak to you now."

Professor Griffiths: "I want to say to you that Mr. Hollinger has no boil on his back, or he could not talk and move around as he does. I feel a great deal better and am able to wear a vest and lace up my corset without putting any cotton inside. Mr. Hollinger lives in New York, as he has told you. He came from Ohio. There is one objection I have to Mr. Hollinger (I am always finding objections, they say.) That objection is, why in the devil didn't he reform at home? There is plenty of room all over this country for just such reforms, and I have been trying to preach it to you. He said he began to learn when he forgot everything. A boy came into college, and the professor said to him, 'What have you studied, what do you know, so that I may be able to place you in your class?' 'I don't know a thing.' 'Well,' said the professor, 'You are about four years ahead of some of these fellows here now.' (Laughter.)

"Now it is a great thing to find what your forte is. (Here the professor asked the audience if he might climb over the railing in front of the platform because he wanted to get near to them; he did so and resumed speaking.)

"Mr. Hollinger found his forte. It is the great secret of success to find your forte, to find out what you can do and do it better than any one who lives. I can tell you of a gentleman, J. H. Dolph, a magnificent man who lives like a prince in a magnificent studio, and has a home in the country, and who once told me a little of his life. He is known among all artists as the cat painter. He said to me, 'When I was a young fellow, I went abroad, and I thought I could paint mediæval characters, soldiers and pages, in the old costumes. I gathered about me all the paraphernalia and accessories, and studied old doorways and the interiors of palaces, and I made up my mind that was going to be my forte. But everybody looked to somebody else who worked in that line. No one asked me for it. I came back and said I would go to work and idealize the farm life of America, that I would find out those things that appeal to the human heart and sympathy. I would go to the farms in the East and West, and find them at the time they were full of poetry and paint them; but I failed to do the grand things that would impress people, and my farmers became clodhoppers, and nobody wanted them; and then one day there came a time when the landlord came and I had no money to pay him, and in my desperation I went to a dealer in pictures, an auctioneer, and said, 'Will you sell some sketches that I have about my studio for just what they will bring?' and he said, 'Yes, bring them down here,' and I gathered up everything that I thought would bring a dollar. I had among other things one beautiful little frame that I had spent at least $15 for, and I had nothing to fill it. I stopped and thought that frame will bring something, but I must have a picture to fill it. A cat came tumbling into the room. Anything to fill this frame, and I painted the cat. I soon got the pictures and sketches down to the auctioneer and he sold them Some of the pictures brought a mere pittance. He put up this beautiful frame, and I thought it would bring at least its cost. The bids began, $10, $15, $20 and up to $85, more than all the rest, four times over. I said to myself, by the gods! if the people want cats they shall have cats, and I have painted cats ever since, and see what I have collected around me.' Mr. Rockwood knows how he lives. He lives splendidly—and yet when you come to think and consider what there is in a cat You can take the human subject and set it up on a pedestal and it will hold its position. Not so with a cat. He comes rolling into the room after a ball of yarn, every muscle full of action. He had one picture of a kitten lying on a table and a lighted cigarette in front of it. I wish you could see the expression of that kitten—surprise, curiosity, anxiety and a little bit of fighting—all the human passions expressed in the face of the kitten. Barye, the great French sculptor, would fondle his cats and feel of their muscles, and his statuettes of animals are the marvel of all French animal painters and sculptors. First find your forte and then push it independent of everybody to the end. You talk about bread and butter. Do you suppose I did not have to earn bread and butter? A fellow said to me, after I made a little speech in Ireland, 'You are domned handy with your tongue.' But I had to fight my way up. I know what a dollar is worth, because I have had to earn it, not only for myself, but for others. If some other man is beyond you, watch him and steal his thunder—get all his good points, steal everything except his tools. Leave those. (Laughter.) Then the other fellow will wake up and say, 'I have got to set a higher pace.'

"I have to make a little apology this morning, because I have been asked not to criticize until to-morrow because you are going to give the awards to-day, and it is always advisable to give the criticisms after the awards. Now, for that reason I am going to entertain you just a little bit.

"I cannot forget Mr. Hollinger, and I think he has some Irish in him, and that he has kissed the Blarney Stone at some time not very far back. You are all interested in the reading of the awards. To-morrow you may bring the pictures up here (for criticism), and I have made arrangements to leave on the next train. (Laughter.) For I expect to tell you the truth just as I see it, and, if it seems to be something different from what you think, well, I am ready to argue with you, but not to fight. I draw the line at that as I am a Quaker. When it comes to an argument or a fight it makes me think of a story. A gentleman who had a bet came to me and said, 'Can't you give me a little encouragement.' I said to him, 'A man met a bear in the woods, and he had no gun, and it was a case where he could not run, and he said 'Lord, I do not call on you often, but this is a case where I need you. Now, I want you to help me, but if you do not help me, do not help the bear. Just remain neutral and you will see the worst fight you ever saw.'

"We are sometimes asked about nudes. I have had that question brought to me this morning. Is a nude picture one to be looked at and one to be criticized and one to be praised? Yes. In a general way, yes. God created the universe. He made the human, men and women; and if he ever intended, as I told you once before, to put on such clothes as we sometimes put on, he would have grown them there. There are some people in this world too modest to take a bath as often as they ought to. I have no patience with them and that sort of modesty; but there is a wide difference between nudity and nakedness. When you give me a picture, I do not care how nude it is, if, in a way, it tells a story, it stands clothed in that story, and it commands my admiration. But when you show me a picture that is simply nude because you can make it nude, and it conveys nothing, I have no patience with it. But the most beautiful of all things is the human figure idealized, and the great difficulty of making portraits of the human figure or of photographing it, is that you take in all the detail of imperfection unless you are a magnificent trickster, as I said yesterday, to get rid of some of the angles and lines which Nature puts into some figures in order that you may see the grace and beauty in others. But mark you, wherever you see those angular lines, in ninety-nine cases out of a hundred there is a good warm heart back of it that makes up for those things. This whole thing is evened up. When He gives you one beauty and one grace, He is sure, on the other hand, to counteract it in another way. So you need not be afraid to use the human figure, but use it as though there was some story to it, and as though to convey to you the beauty and the power and the glory of the human figure, full of action, full of muscles, with blood under the skin, and moving and acting in a godlike manner.

"Now, you talk about making portraits. You people are not careful enough of details. It is well known that little things make pictures as well as little actions in life make our lives good or bad. I see pictures that would be magnificent specimens if they were not botched, you might say, in the trimming of them. I know many artists who paint pictures on a much larger canvas than they intend to use, and then they arrange their frames so that they will take in all that is most pleasant, so they will act as the frame around a window through which you may get a glimpse of Nature.

"It is the collecting together of all those things. I know a gentleman, Paul Delsarte, a man who won his spurs in France, whose pictures are full of everything that goes to make a picture. I watched him paint a portrait of Richard Croker in New York, and Croker was a busy man, and he had to paint him at his club and at a disadvantage. The picture was about through, and just as he was about putting on the finishing touches, a boy came in with a telegram for Mr. Croker. He read it, and instantly there came over him and his face a new expression. There was something here that required immediate action. He walked across the floor and hammering on the table, he said to the messenger, 'You can say so and so.' Delsarte had never seen Croker in this way before. He said, 'Will you give me a few more sittings? I want to paint Richard Croker as I see him to-day.' The picture was finished, full length, showing the man as if he would step out and speak to you. It was illustrated in the New York *World* in a full-page engraving during the past winter. There was the artist for you. When there came a gleam of intelligence to him he said, 'I will tear down what I have built.' That is the true artist for you; he tore down what he had done to build over. Now, as a sort of prelude to you in regard to what you may get in the way of awards, I want to say to you a few things honestly and squarely. I believe that you are a set of professional men with honor. I believe there are some men in this profession, like all others, who ought to be digging ditches, but that does not mean anybody here. (Laughter.) Present company is always excepted, but I want to say to you that I do not believe there is a single man before me, or woman who wants a prize that does not belong to them. I do not believe you would accept a prize which does not belong to you honestly and squarely. By the surroundings often there seems to be no other way than to award the prize to a certain person, and yet his work is away below the standard of merit in another class. Do you want it? Is it worth anything to you? We value a medal or an award because of the thing we do to win it. All of the athletic achievements of the Greeks were for the honor and not the award. Simply an olive branch. By force of circumstances this year, your judges have struck out in some new departures. Just here, I may say, we expect to be blamed. We expect that. I ride a wheel a great deal. I am one of the old riders. I believe they give me that credit. When I used to ride one of those old high wheels where you were away up in the air, and when I tumbled it was not because of the drinking fellow who sat on the curbstone and laughed at me, but it was the infernal fool who came into the middle of the road that I had to ride over. We have ridden over some of the former ideas here. You will appreciate it thoroughly and squarely. The awards have been made on their merit, and when you have lived two years longer and have stolen some of Mr. Hollinger's thunder, and a little of his money honestly, you will appreciate what we have said. Now I believe it is pretty nearly dinner time, and the only compliment I ever got was that I did not talk long enough. I will quit. Good day."

President Kellmer: "The Secretary will read the awards."

Secretary Sperry: (Reading.)

EASTERN DIVISION.

Genre Class.—One picture entered, "Little Magdalene," Will Armstrong, Troy, N. Y.; gold medal.

"The Blacksmith," Philip Conklin, Albany, N. Y.; silver medal.

Class A.—Six pictures, E. C. Dinturff, Syracuse, N. Y.; gold medal.

Class A.—Six pictures, H. Schervee, Worcester, Mass.; silver medal.

Class A.—Six pictures, Will Armstrong, Troy, N. Y.; bronze medal.

Class A.—Six pictures, A. N. Camp, Jamestown, N. Y.; diploma.

Class B.—No entries.

Class C.—Four pictures, D. E. Rowell, Lancaster, N. H.; silver medal.

Class C.—Four pictures, C. O. Towles, Frostburgh, Ind.; bronze medal.

Class C.—Four pictures, C. Krauch, Trenton, N. J.; diploma.

Class D.—Twelve cabinets, Louis J. Jensen, Buffalo, N. Y.; silver medal.

Class D.—Twelve cabinets, M. R. F. McCarty, Binghamton, N. Y.; bronze medal.

Class D.—Twelve cabinets, Carl K. Frey, Utica, N. Y.; bronze medal.

Class D.—Twelve cabinets, Don C. Scot, Friendship, N. Y.; bronze medal.

Class D.—Twelve cabinets, Rogers & Newrig, Binghamton, N. Y.; bronze medal.

Class D.—Twelve cabinets, John Betts, Jr., Baltimore, Md.; bronze medal.

Class D.—Twelve cabinets, Chas. T. Marshall, Cazenovia, N. Y.; bronze medal and special mention.

Class D.—Twelve cabinets, George E. Tingley, Mystic, Conn.; bronze medal.

Class D.—Twelve cabinets, Towles art gallery, Cumberland, Md.; bronze medal.

Class D.—Twelve cabinets, F. J. Remington, Buffalo, N. Y.; bronze medal.

Photograph by Sprotte.

STUDY OF A HEAD.

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Class E.—Landscape, L. V. Kupper, Edinboro', Pa.; silver medal.

Class E.—Landscape, Chas. T. Marshall, Cazenovia, N. Y.; bronze medal.

Class E.—Three pictures, landscape, Robert Wilkinson, Montpelier, Vt.; diploma.

Class F.—Three pictures, interiors, Chas. T. Marshall, Cazenovia, N. Y.; silver medal.

Class G.—Six pictures; no entries.

Class H.—Instantaneous pictures, George E. Tingley, Mystic, Conn.; silver medal and honorable mention.

NORTHERN DIVISION.

Genre Class.—Only two entries, neither up to a standard of merit worthy of award.

Class A.—Six pictures, W. J. Huston, Toronto, Ont.; silver medal.

Class A.—Six pictures, Chas. L. Rosevear, Toronto, Ont.; bronze medal.

Class B.—Only one exhibitor, group of three pictures, and this below the standard.

Class C.—Four pictures, J. Frank Jackson, Barrie, Ont.; silver medal.

Class D.—Twelve cabinets, J. A. C. Morrow, Hamilton, Ont.; silver medal.

Class E.—Landscape, K. W. Snider, Kingston, Ont.; silver medal.

Class F.—Interiors, only one exhibit, and of inferior merit.

Class G.—Commercial, Chas. L. Rosevear, Toronto, Ont.; silver medal.

SOUTHERN DIVISION.

Genre Class.—" Pensona," Homeier & Clark, Richmond, Va.; gold medal.

Genre Class.—" 'Tis better to have loved and lost than never to have loved at all."—G. Moses & Son, New Orleans, La.; silver medal.

Class A.—Six pictures, Motes & Moore, Atlanta, Ga.; gold medal.

Class A.—Six pictures, W. H. Hoffman, Savannah, Ga.; silver medal.

Class A.—Six pictures, G. Moses & Son, New Orleans, La.; bronze medal.

Class A.—Six pictures, Knaffl & Bro., Knoxville, Tenn.; diploma.

Class B.—Three group pictures, W. H. Hoffman, Savannah, Ga.; gold medal.

Class B.—Three group pictures, G. Moses & Son, New Orleans, La.; silver medal.

Class C.—Four pictures, George Harris, Little Rock, Ark.; bronze medal.

Class D.—Twelve cabinets, Bushong & Feldman, El Paso, Texas; silver medal.

Class D.—Twelve cabinets, A. F. Procter, Huntington, W. Va.; bronze medal.

Class D.—Twelve cabinets, Mrs. L. Condon, Atlanta, Ga.; bronze medal.

Class E.—Landscape, W. G. and A. J. Thuss, Nashville, Tenn.; bronze medal.

Class E.—Landscape, O. Pierre Havens, Jacksonville, Fla.; bronze medal.

Class F.—Interior, O. Pierre Havens, Jacksonville, Fla.; silver medal.

Class F.—Interior, W. G. & A. J. Thuss, Nashville, Tenn.; bronze medal.

MIDDLE DIVISION.

Genre.—"An Evening Story," Wm. Godfrey, Chicago, Ill.; gold medal.

Genre.—" Music and Reverie," W. N. Brenner, Cincinnati, O.; silver medal.

Genre.—No third prize awarded.

Class A.—Six pictures, W. N. Brenner, Cincinnati, O.; gold medal.

Class A.—Six pictures, Schreiber Bros., West Bend, Wis.; silver medal.

Class A.—Six pictures, Jas. Arthur, Detroit, bronze medal.

Class A.—Six pictures, L. A. Dozer, Bucyrus, O.; diploma.

Class B.—Three group pictures, no award.

Class C.—Four pictures, R. D. Beem, Greenville, O.; silver medal.

Class C.—Four pictures, H. J. Perry, Aurora, Ill.; bronze medal.

Class C.—Four pictures, Wm. Godfrey, Chicago, Ill.; diploma.

Class D.—Twelve cabinets, McPherson Bros., Rockford, Ill.; silver medal.

Class D.—Twelve cabinets, J. M. Brigham, Plainwell, Mich.; bronze medal.

Class D.—Twelve cabinets, George Smith, Cincinnati, O.; bronze medal.

Class E.—Landscape, H. P. Dexheimer, Marion, Ind.; silver medal.

Class E.—Landscape, Allen Fanjoy, Sault Ste. Marie; bronze medal,

Class F.—Interior, O. H. Wheat, Rockford, Ill.; bronze medal,

Class G.—Commercial, McPherson Bros., Rockford; Ill.; silver medal.

Class G.—Commercial, O. H. Wheat, Rockford, Ill.; bronze medal.

Class H.—Instantaneous landscape, Allen Fanjoy, Sault Ste. Marie; silver medal.

WESTERN DIVISION.

Genre.—Five pictures offered, non-worthy of awards.

Class A.—Six pictures, J. A. Brush, Minneapolis, Minn.; gold medal.

Class A.—Six pictures, J. V. Dabbs, Fort Scott, Kansas; silver medal.

Class A.—Six pictures, P. H. Bauer, Leavenworth, Kan.; bronze medal.

Class B.—Three pictures (groups), George Steckel, Los Angeles; gold medal.

Class B.—Three pictures (groups), P. H. Bauer, Leavenworth, Kan., silver medal.

Class C.—Four pictures, T. Zeifel, Duluth, Minn.; silver medal.

Class C.—Four pictures, G. U. Hyland, Portland, Ore.; bronze medal.

Class C.—Four pictures, E. S. Curtis, Seattle, Wash.; diploma.

Class D.—Twelve cabinets, two exhibits, neither up to the standard.

Class E.—Landscape, E. S. Curtis, Seattle, Wash.; silver medal.

Class F.—Interior, Struck Aune, Portland, Ore.; silver medal.

Foreign Exhibit.—Wm. F. Slater, London, England; silver medal.

Foreign Exhibit.—F. Knapp, Calcutta, India; bronze medal.

Grand Portrait.—Pirie Macdonald, Albany; diamond badge.

Grand Portrait.—J. E. Mock, Rochester, N. Y.; gold medal.

Grand Genre.—No awards.

President Kellmer: "The exhibits that have received awards will be marked with ribbon some time this afternoon, as soon as possible, so you can look at them and study them."

On motion, the meeting adjourned to 10.30 A. M.

THURSDAY, JULY 14TH.

THIRD DAY—MORNING SESSION.

President Kellmer called the meeting to order at 11 o'clock, and said:

"I have been requested to ask Mr. Hollinger to talk for a few minutes; if he will do so, we will then proceed with the regular order of business."

Mr. Hollinger: "Good morning, Ladies and Gentlemen,—Down in Ohio when they wanted the crowd to come together for a meeting such as this, they always sent me out. Somehow or other I had a way of making a lot of noise and got the people, and I am pretty sure that was the scheme of the President when he called on me this morning, and here I am, and you can see the people coming now from every direction. A gentleman who is engaged in business over there told me yesterday he had to drop his business and come over to see who was speaking. He heard a noise, but did not know who it was. I take an active part in it, and I enjoy the compliments I receive afterwards, and I can nearly tell what a man is going to say when he comes up to speak to me. I just say, 'All right,' and let him go on. I have always been a sort of a filler to put in a place where they did not have any one else who would fit. I never was on the programme. I do not have anything to do with that sort of thing. They simply pick me up and use me everywhere. My wife has tried to keep me from going out and doing things, and I have been trying to break myself from being a fool. I am getting slightly over it. I am going to have better sense. As a man gets older and grayer he should have more sense. I am not getting old. There is not an old thing about me. I do not get tired. I do not worry. I let the other fellow do the worrying. I let the other fellow worry, and all the time I keep sweet, and I want to tell you if you want to take, nice, sweet, easy pictures and make the people feel at home you must keep from worrying. That is a great secret. You go into your operating room mad, no matter if you were mad in your dark-room, and it will show to people. They will feel things. You feel things and we have got to get feeling into our pictures. We must draw out life, we must get the feeling in them. I throw away every negative that does not have some expression of the person in it, some movement and something that seems like the person. If it does not have that I throw it away, and we can only have that expression by going into the room and being ourselves. That is a lifelong habit to learn to be pleasant. You should be pleasant at home, with your wife and your family and neighbors. Be pleasant all the time. I want to give you a little trick how to do that. Do not go to a convention and commence to hunt out the bad points, look for the good points. Look for good everywhere and you will find it. The world is just full of good and of beauty everywhere. (Applause.) And if you feel that, you will find it everywhere. The world is full of beauty and loveliness on every hand. You can never hate a thing and love another at the same time. You will be what you think. What you think, that is what you will be. If you think ugly and hateful thoughts you will be an ugly and crusty looking old fellow, and you will wonder how the people know you are crusty and ugly, while you are trying to have them think the opposite. You will feel it; people will feel it. Go home and live it for a good many years and learn to be pleasant and nice. As long as the public is afraid of you, do not blame the public; just know there is something the matter with *you*. People see the inwardness of people. They see away down in and they see an expression there at a glance, they catch that and they say that is a man I am afraid of.

That is true of young ladies and older people, that there is something hid, and that he is on top just at present and for the present moment. Constant pleasantness makes people feel that way. That is one thing I enjoy in my room, trying to make people feel pleasant, and feel that there is a fellow there whom everybody likes to know. I like to know everybody, and I am glad to go away from here thinking that all are friends instead of enemies. Some one asked for me to come up here because they had a question to put, and this is just where I was sent off at a tangent. I would like to know what they want to know. I said to the President a while ago, people want to know things, but they don't know what they want to know. Tell me what it is you want to know, and I will tell you all I can to help you. I have tried it in the small towns and in the cities."

A Member: "Do you allow any one in your operating room?"

Mr. Hollinger: "Not a single person. (While I am working?) If any of you come to New York to see me, I will take you in the operating room, the print room, the darkroom, and anywhere, but neither you nor any one else—not even the boy who carries my plates for me—can go in the operating room when I make a sitting. I do not have any one in there but myself and my sitter. (Applause.) The mother has to go out. I take the children in with me. I kick the ball in the operating room, and I get in there and get acquainted with the child, and the mother stays out, unless it is a little bit of a baby I cannot hold myself, and that is the only time I allow it. Frequently they want to go in. I have a nice way of telling I do not like to have them watch me. I want to concentrate the attention of that sitter. I never ask anybody to smile. I never say smile. I never tell anybody to look cross. They generally do that, anyhow, and I take them just as they are, without any suggestion of an assumed expression. I just take the people, and if the expression does not suit me, I throw it away, and if the picture does not suit them, they have to throw it away. The assumed expression is often a smile in one feature, perhaps the mouth, while the eyes have another expression, and there you have a composite expression which is unpleasant. An expression called up for the moment has no business in a picture whatever. See people as their friends see them, and take their pictures that way."

A Member: "Suppose you do take a picture and they do not like it, do you give them a resitting?"

Mr. Hollinger: "Just as many as they like. The more negatives I have the richer I am. We have to have expense you know.

"I had a young lady come in with her mother not long ago, and she wanted a sitting, and her mother was bound to go in and see her daughter posed. After the daughter went out of the operating room the mother said: 'Well, how did he pose you?' The daughter said: 'Pose you, pose you.' She said (pose you) three times. Why, he did not pose me; he just stood me up there and took me just as stiff as he could,' and I got along splendidly with it, and they were surprised. The old lady wanted to come in and tell me how to pose her. I want to tell you something about Hollinger. He does not imitate anybody. I do not follow. I just do things I see. I never go into the operating room with my mind made up what I am going to make. Do not try to make any two pictures alike. Make a variety and you will enjoy the business. These are points that are worth knowing. Make a great variety. Do not make too many pictures of the same kind. Remember that."

President Kellmer: "The Secretary will read some communications which we have received."

Secretary Sperry: "The first one is from Mr. John Carbutt. He says: 'I very much regret that I cannot be with you in person at this Convention for personal reasons given my friend Guerin in a recent letter.'

"The other is from George A. Ayers, of Chicago. 'I wish I was with you and the others, if only long enough to enjoy a handshake all around, but cruel and hard fate has decided otherwise. Hope you will have a good time and a successful Convention.'"

President Kellmer: "We will now hear the report of the Committee, of which Mr. Bellsmith is Chairman."

Mr. Bellsmith: "Your Committee appointed to draw up suitable resolutions upon the death of ex-President Landy beg to report as follows:

"*Whereas*, It has pleased an all-wise Providence to remove from our midst our worthy ex-President, James Landy, of Cincinnati, whose reputation as an artist, and master of Photography was recognized the world over, and whose Masterpieces are beacon lights which lead us in the highest realms of Art:

"*Be it Resolved*, That we, the members of the Photographers' Association of America, in Convention assembled, do hereby express our sorrow at having lost so valued a member, and esteemed friend. Be it further resolved that we extend our sincere sympathy to the bereaved family, and that the Secretary be instructed to forward them a copy of these resolutions.

"R. P. Bellsmith,
"G. Cramer,
"J. S. Schneider."

A Member: "I move that the vote be taken standing."

President Kellmer: "It is moved and seconded that the vote on these resolutions be taken by rising to your feet. Those in favor of the adoption of the resolutions will please rise. It is a unanimous vote."

Mr. Macdonald: "The Committee on prize rules beg leave to report:

"The Committee appointed by you on prize rules would respectfully submit the following propositions: A grand prize class requiring twelve pictures, 16 inches or larger, the prize to be $1,000 cash, with an entrance fee of $50.

"The second class to be of twelve pictures, from 9 to 16 inches, the prize to be $250 in cash, the entrance fee to be $10.

"A third class of fifty cabinets, the prize to be $250, the entrance fee to be $10.

"A fourth class of twenty-five cabinets, the prize to be $100, the entrance fee $5.

"An illustrative class of three pictures, 16 inches or larger, prize to be $400 with an entrance fee of $25.

"S. L. Stein,
"J. S. Schneider,
"Pirie Macdonald.

"In explanation of this report it has been noticed that for several years many of the more prominent photographers have held aloof from competition. There has been a reason for this. We do not know definitely and explicitly what that reason is. While we do have some shows of sterling merit, there are many, many men who have the ability to make work fully equal to, and perhaps way beyond what we are in the habit of seeing. This feeling is current, I believe, among you, and that something must be done to draw these people out, to bring them into our midst. We need them perhaps more than we need anyone else almost. There is a striking instance that everyone has commented on, of a man, who in my opinion, and in the opinion of a great many people, is the cleverest man America has ever known, Steckel of Chicago. That man does not need to run the risk of going into a competition for a bauble."

A Voice: "He would not come for a thousand dollars."

Mr. Macdonald: "I demand protection."

President Kellmer: "The gentleman should not be interrupted."

Mr. Macdonald: "I can name very many instances of that same order of people who will not be drawn into competition where there is a question of their being beaten for a medal. Going down through the lower classes, we have, as you well know, many, many shows that are not worthy of the name, shows that are here simply because they have a chance to run in and get something with which to advertise. Laudable enough, but that is the only object. The notion we have prepared here, while it may seem extravagant, from a financial point of view, is not so extravagant as it would at first seem. If twenty entries can be had for the grand prize and it is very reasonable to suppose that a larger number, even, of entries will be made, the twenty entries will pay the grand prize. If that class can carry the prize in that way, there is very little reason to suppose the other classes will not also carry their prizes in the same way. The entry fees have been based on a 5 per cent. rating. The grand object of this all, is to give you something new and something which will make you work. There is scarcely a man in this house but that can make twenty-five cabinets, and if there is a man here who has not $5 to back his pictures with, I, for one, do not want to know him. (Applause.) The entry fee will be, in my opinion, absolutely no bar if you have faith in your work, and if you have no faith in it, do not bore us with it. Gentlemen, this proposition is not something to be forced down your throats. It is something which has been brought forward as the best fruit of our intellect; something for you to discuss, and something for you to reject if you do not like it, and something for you to receive if you do."

Mr. Hayes: "In order to get this before the Convention, I move the report be adopted."

Mr. Bellsmith: "I move, as an amendment, that the report be received."

Mr. Rockwood: "Would it not be well to inform the Convention whether this is to be the exclusive form of awards, or whether there is to be anything else besides those classes mentioned by Mr. Macdonald?"

President: "I believe that is to be all the awards."

Mr. Rockwood: "Has there been anything said or done about the manner in which the competition should take place; that is, whether the exhibition shall be marked with the name and prestige of the party making the picture, or whether there is to be an exhibition according to well-known practice, in which the name of the exhibitor is not known?"

Mr. Macdonald: "I do not know that a rule of that kind enters into the adoption of the report."

A Voice: "Out of order. Rockwood has the floor."

Mr. Rockwood: "I have never found a competition in any other place than in this Association, where the name and reputation of the exhibitor was known to everybody."

Mr. Macdonald: "I rise to a point of order, Mr. President. The gentleman is not speaking to the question."

Mr. Rockwood: "If it is not to be an open discussion I want to sit down and allow anybody who wants to, to take my place. (Applause.) I am not appearing here in antagonism to my old friend Mr. Macdonald or to any one else, but I have heard this question discussed by a great many gentlemen yesterday and the day before, and some of them asked me if I would not bring it up. It was the last thing in my mind to do that until just this moment, when it occurred to me that that thing should be thoroughly and fully discussed. In all exhibitions that I have had anything to do with or that I am cognizant of, the exhibits have been put up by number, and the judges were supposed not to know to whom those exhibits belonged. (Applause.) It is a very sure thing that nothing could be fairer on earth than that. At the proper time for discussion let this matter come up. I do not know but I am out of order in my suggestions. When I asked this question I did not mean to arouse any antagonism or to antagonize this report, because I am quite in favor of it from my first impressions. I simply wanted to ask if there would be any other competition, and then it occurred to me after I got on my feet. The question has been propounded to me by so many people, 'why do we not have a fair competition?' I said it is fair. I defended the committee; they did not need any defense, it is true, but it is a fact that if we are going to have competition of a kind so important as that, it should be of that nature that by no means should the committee or the public know who makes the pictures, whether it is a man of big reputation or one of small reputation. I have known pictures made out there by young men who have no reputation. I do not believe those pictures received much consideration." (Applause.)

Mr. Macdonald: "I merely wish to state with reference to my objection to Mr. Rockwood's speaking on the question on which he was speaking, not that I wished to throttle discussion and free expression, but I believed the question he was discussing was not the question of the adoption of the report, nor does it pertain thereto. Those matters he refers to will come under the rules which regulate the minor considerations. I have no issue at all with Mr. Rockwood on the question on which he was speaking. I merely wish to divert discussion to its proper channel, and I believe a proper discussion of this question before us will do a great deal of good, even if the resolutions and the report are not carried The very fact that you have gotten together, and do discuss it is a benefit. If you bring up any new points, if any of you have another idea which is better than this, we welcome it. I wish to say to Mr. Rockwood that I have absolutely no issue with him on the particular question except that I believe it is not in order at this time."

A Member: "I wish to say it seems absurd to me to ask any man to bring fifty pictures to a convention of this kind."

Mr. Schervee: "While this report comes like a thunderbolt, and while I do think it would be impossible to discuss it at this time, I do think that some radical change should be made in the way of prizes and prize rules. I should ask every one to most thoroughly weigh this matter, and I should prefer to see this matter left to the Executive Board. I think we might stay here for a week or a month and discuss this question, and hear the different opinions and still come to no result. This is one of the gravest questions I think that could possibly be brought up. It is a question that comes up here as it does in any other professional line or any kind of sports. When you start in for a medal and a money prize, you are doing something that is either going to elevate you or wipe you off the face of the earth, and I think this is really no place for discussion of this problem. While I think that we should all most thoroughly understand it and discuss it, I should hope most sincerely that the question may not be voted on here. I know that a thing of this kind cannot be absorbed by the majority of those who are here, and they cannot make their final decision now. I can say for myself, this is a matter I should want a little time to consider, what is for the benefit and advantage of this assembly and for the advantage of the photographic profession in years to come. I will say in regard to Mr. Rockwood's remarks, which I think were admirable, that I think that question of marking the exhibit should have our first consideration. I hope that is a thing which may be added in this change." (Applause.)

Mr. Rockwood: "I heartily endorse the suggestion of the gentleman that this thing be referred to the Executive Committee. That committee is an embodiment of the good sense and wisdom of this Convention. This question has been very suddenly sprung upon us—I do not mean sprung. It has come upon us suddenly, and there is hardly one here prepared to give a decision, I am sure. I could not possibly give a decision in regard to it, and I believe that my years and experience would be such as to warrant me in making a decision almost as early as any one else. I think that this thing should be put in the hands of the Executive Committee, and they should consider it thoroughly and advisedly, giving it the proper time, and the Convention will most gladly defer to the action of that Committee, without doubt. I should like to make a suggestion that they consider the matter of lesser prizes. I do not mean to urge that. I do not mean to say that would be best. I mean to say it would be best for them to consider those questions, and I believe this Convention will be glad to put it into the hands of this admirable body to consider and dispose of this whole matter."

Mr. Hoffman: "I believe that the Committee would do what is best, but I believe that this is a step backward instead of forward, because this is a convention of photographers, and not experts. If the man of reputation is afraid to enter into competition, let him stay away. (Applause.) Why bar anybody else with a high money consideration from entering? You are simply barring the poor fellow who is struggling, and who may have artistic talents. You are barring him with pictures 16 inches or larger and a high money consideration. Has anybody heard of any art exhibit where they said your picture must be 16 inches or larger, or 36 inches, or 5 feet? We find the finest gems of the world in art are small pictures, not large ones. Why, then, do you want to bar nine-tenths of the photographers from entering the competition by specifying that their pictures must be 16 inches or larger?"

Mr. Bellsmith: "I move that the report of the Committee be referred to the Executive Committee, with favorable recommendation of this Convention. That does not make it imperative that they should carry out those lines, but they may see it is possible to modify it."

Motion seconded.

Mr. Todd: "With all due deference to the remarks made, I feel that this is a very important matter, and we should have a definite expression of the ordinary members of the Convention before this thing is passed into the hands of the Executive Committee with favorable recommendations."

President Kellmer: "As I understand it, that favorable recommendation is not that the Committee accept the report of the Committee, but that you would hear from them at a later day before we adjourn.

Mr. Todd: "All the same, it goes before the Executive Board with the expression of this body that they are in favor of some such idea as a sweepstake competition being carried out."

President: "You have no right to that opinion."

Mr. Todd: "The English language is as much my property as it is that of Mr. Bellsmith or yourself. Favorable recommendations are favorable recommendations. Now, sir, there are lots more brains and lots more artistic culture than I possess right here in this Convention, but when it comes right down to a desire to see the average photographer of this country become more and more artistic, I will not lie down to anybody. For four years, Mr. President, I have done little else but think how I could aid photographers artistically. I have been rough, but it was because I thought it was necessary to take rough measures in order to attain a certain end, but after four years, Mr. President, I will not stand up here one minute and let go unchallenged any proposition to get up a money standard and a sweepstake condition in order to induce people to come in and show their pictures upon these walls. I believe that the Committee have a desire to encourage the exhibition of pictures upon these walls, but unfortunately they can only see things with the eyes they possess. Very naturally you see from your side only. There are many who are not masters, and it is in those my interest has been centered for the past four years. Pirie Macdonald and Mr. Stein are men of ability and can take care of themselves, but there are younger men with no experience in the world, who want a little encouragement, and it is these younger men with whom my sympathy goes. (Applause.) Those are men I want to see bring pictures here that they may learn from those who know more, from Macdonald and from Stein, and I do not want to see them debarred by a size or money consideration. If you had made a money consideration of even $20 a couple of years ago, I could not have been with you. I have been dead broke in this world again and again and again, but I always felt that I was a man, whether I had a dollar in my pocket or not. So I say away with this proposal to make a sweepstake of art. (Applause.)

Mr. Rockwood: "I will be but a moment, Mr. President. As a corroboration of what Mr. Todd has said, I want to give one sentence that has been thrust into my ears since I arose, a minute ago, from a dozen different people. The purport of it was, as one expresses it, 'What are we poor devils going to do?' That question I will not discuss. I will simply put it to the Committee for them to think of and discuss—what are we poor devils going to do?"

Mr. Macdonald: "This question was debated to a very great length by your Committee. We went over the idea of carrying on the prizes as they have been handled—in divisions. We very fearfully canvassed the idea about the salon. My friend Schneider said, 'What are you going to do with these fellows who have not the money? Why not have an open salon? Why not have an open exhibition and give every man a medal who is capable of making a picture worthy of being hung?' We canvassed that idea very carefully, but the main reason that actuated us in the formation of this report was the fact that to-day you have got 176 entries and 164 prizes to be awarded. Gentlemen, if you want to stand for a thing of that kind, all right. Do you want to be puppets and take home these little bronze things which you have not won? That is what you are playing for if you want any other method than going for prizes. If you want more valuable prizes and less of them, I will be very glad to step one side and say do it; but you are ashamed of the conditions which exist now. The motion for the formation of this Committee was carried without a murmur, because yesterday you felt that it was necessary to make some change. I do not mean to say that a money consideration is the only thing in the world, but I do mean to say that in our present condition we are not satisfied with the conditions that exist. In regard to entry fee and size limitation, for all the years I can remember, and they are not many, we have always had a size limitation. To-day our grand prize rules require that the picture shall be 16 inches or over. There is no injustice in this. Any man who cannot make twenty-five reputable cabinets in one year, as to that point, we will leave the judgment of such men to themselves."

Mr. Schervee: "I cannot quite understand Mr. Macdonald in regard to the amount of prizes and medals this year. I think we have made most admirable advance. I think it is in the right line."

A Member: "I move the report be laid on the table."

A Member: "Give all the photographers a chance to be heard on this subject."

Mr. Schervee: "To bring the matter to a head, I move that the report be received and referred to the Executive Committee."

Mr. Rockwood: I am in favor of that, and I would endorse the amendment and suggest that we add, 'Referred to the Executive Committee with power to act.'"

President Kellmer: "I wish to announce to those who are leaving the hall that there will be an excursion given by the manufacturers and dealers, on the steamers *Cincinnati* and *Chicago*. They will leave Celoron at 2 o'clock and Greenhurst at 2.15, and Lakewood at 2.30 P. M."

Mr. Macdonald: "I wish to say that it will give me a great deal of pleasure to see the report of the Committee disposed of in the way suggested, and have it referred to the Executive Committee with power. There seems to be a mistaken notion that this report was brought here with the idea that it was to be forced on you. The idea was to get your wits working about it. If it is not your pleasure, certainly I do not want it, and I can speak for the other two gentlemen of the Committee. If it is not favored by the majority here there is no question they themselves do not want it. If it can be carried by pushing we do not want it. This is something that has got to come from your hearts, and I believe enough has been said to serve as a guide to our Executive Board, in whom I have the utmost confidence."

President: "The motion is to amend the motion of Mr. Bellsmith to refer to the Executive Committee with favorable recommendation; the amendment is to refer to the Committee with power.

"Are you ready for the question?"

Carried.

"Those in favor of the motion as amended will signify it in the usual manner. It is carried.

"I will appoint as committee on nomination of officers, who are to report to-morrow, Mr. John Schneider, Mr. H. Schervee and Mr. Frank Place.

"The question of location of the next Convention will be the first business in the morning."

On motion, duly seconded, the Convention adjourned to the following morning.

FRIDAY, JULY 15TH.

FOURTH DAY—MORNING SESSION.

President Kellmer called the Convention to order at 11 o'clock. The programme opened with criticisms of pictures by Professor A. H. Griffith, with which the audience was highly delighted. The criticisms could not be made intelligible in print to the reader without reference to the pictures themselves, which constituted an object lesson to Mr. Griffith's hearers.

At the conclusion of this part of the programme, on motion of Mr. Stein, duly seconded and carried, the Convention proceeded to the selection of a place of meeting for next year.

Secretary Sperry read communications and invitations for the next Annual Convention from Milwaukee and Put-in-Bay.

Mr. Stein: "Mr. President, Ladies and Gentlemen—I do not think it is necessary to speak of what Milwaukee will do for you after what you have heard in the way of letters from the Governor, the Citizens' League and others. I wish to nominate Milwaukee as the place of meeting of our next annual Convention."

Mr. Macdonald: "As a matter of comparison and choice between Milwaukee and Put-in-Bay, I can see no comparison. The latter place has a hotel controlled by a corporation. At Milwaukee you can be entertained at any price you please in that municipality, and you can get as fine hotels as there are in the land. As a compliment to my friend Stein I would second the nomination of Milwaukee."

Mr. Bellsmith: "I place in nomination the Hotel Victory at Put-in-Bay as our next place of meeting."

Mr. Brush: "If we have to leave Celoron, which I hope we will not have to do, let us get away from the crowded cities during the summer months. I have attended conventions twenty-eight years, and there is no enjoyment like a watering place and like that surrounding Celoron. If we have to change I would second the nomination of Put-in-Bay."

Mr. Bowersox: "When I consider the grand entertainment and the enjoyments we have had in Celoron, I am surprised that any one wants to go back to the crowded and hot cities to try and hold a convention. We do not go to a convention solely to have a good time, for sight seeing and excursions. We go there to study. We go there to learn and to get new ideas. We go there to study photography from the artistic as well as the mechanical point. How can we go to the hot cities and go back to the old style of convention, when we have enjoyed three consecutive seasons at Celoron, where we have really learned something? The Hotel Victory has invited us, and I have a letter, received this morning from them, which says, 'Since writing you a few days ago, I remembered that you would require cheaper houses for those who could not afford to pay the prices of our hotel. I wish to say there can be accommodated on the island one or two thousand people in first-class style where prices range from $1 to $5 per day.' I hope we can go to Put-in-Bay next year."

Mr. Cramer: "I wish to say a good word for St. Louis, which is dear to the memory of all those who have been there, and I defy anybody to say he did not have a good time there in every respect."

A Member: "A hot time?"

Mr. Cramer: "We will give you a warm reception there and will make the Convention a pleasant one, and instructive, and will do everything to make your Convention a success. We can give you as good a time as any other place, if not better. I hope you will give it due consideration. I would never advocate taking it away from here, but as the feeling seems to be for a change, I would tell you to go West, and bring in all that large crowd from the middle territory. Do not be selfish and keep it in the East all the time."

Mr. Bowersox: "There is not another place in the country like Chautauqua, except Put-in-Bay. The people can be all accommodated in the hotel there. It is a delightful place. It is good for the manufacturers and dealers who, as well as ourselves, can be all accommodated there."

Member from Wisconsin: "On behalf of the Photographers' Association of Wisconsin, I would extend an invitation to this Association to hold their next meeting in Milwaukee. We have no more beautiful city in the West than Milwaukee. There is no city that is better located than Milwaukee, the Green City on the shores of Lake Michigan. The two hundred and fifty photographers of Wisconsin will add their mite to making the meeting a success if you will take it to that city. I hope to greet you in 1899."

Mr. Bellsmith: "I move that nominations be closed."

Mr. Parker Willis: "Before nominations close I would like to say a word. I do not see how we could be better entertained than we have been in Celoron. It does not seem possible to me that we could find a better locality than Celoron. I live about four hundred and fifty miles west of here, and I am sure that the Indiana photographers have been highly entertained here. I would like to place Celoron in nomination for 1899."

Mr. Schervee: "I wish to heartily endorse the nomination of Celoron. We come here to learn as well as to be entertained. We come here to put in a week of hard, solid work. We do not wish to be merely entertained by these great cities. We come here to advance ourselves in photography. There is no prettier sight to me than this Lake Chautauqua. There is no greater treat than to come here in the morning, and then to be refreshed by the little sail on the water, and ready to take up the start again in the afternoon. I think we have made a great advance in the last few years in photography, and I hope that Celoron will be made the home of the photographers as it is the home of Literary America. I heartily endorse the nomination of Celoron."

Mr. Rockwood: "I do not think we ever accomplished as much as we have on this spot. (Applause.) It is an ideal place here in every way, shape and manner.

We do not come here to be entertained, but as has been well said, we come here to study, and never before has there been such an advance in our Art as during the last three years when all the attention of the Convention has been concentrated on the work of photography. The argument that has been advanced that we wanted to give our young photographers an opportunity of seeing other places, does not seem to me to be worth considering when we compare the advantages derived here from the work that has been done here. We would be royally entertained in Milwaukee. There is no doubt about that, but our attention would not be concentrated if we went elsewhere as it has been concentrated here to the work of photography. I want to endorse the nomination of Celoron as the place for our next meeting."

Mr. Abbott: "Mr. President and Ladies and Gentlemen—I am quite surprised to see Celoron put in nomination to-day, as I supposed it was a generally understood thing that we would have to part with you this year; but from several comments I have heard around me since this meeting began, I feel that I should say something. I understand there has been a rumor here and there that we were tired of you, and that you were a trouble to us. Now, I want to tell you that that is very far from the truth, and I cannot allow any man or woman to leave the hall with any such impression. We have heard from time to time a great deal of talk about raising the dignity of the photographic profession. I want to say to you people that you will not want any recommendation, of course, if you go to our old friend Cramer, but if you go to Milwaukee or Put-in-Bay, or any other spot on earth, and you wish a testimonial for dignity you can apply to the citizens surrounding Chautauqua Lake and they will give it to you. (Applause.) You have conducted yourselves since you have been with us in a dignified manner, in a business-like manner, in a professional manner, and in a manner that has brought down upon you the commendation of all our citizens, and you are as welcome as the sunlight to come back here. (Applause.)

"The chief charm of your honoring us, and it is a very great honor, and one we appreciate, three times consecutively—an honor you have never conferred upon any other part of the country, and we appreciate the honor in all its bearings. The chief charm of your coming here these three years has been the practically unanimous consent and vote of the best elements of the Convention to come back, and the only reason why I did not get up here and second the nomination of Celoron, and have let other people do it, was because I thought if our citizens saw that there was a divided sentiment, we would simply feel as though we had a party of guests in our house, and a fraction of those guests were unwilling guests, and it would make us feel a little uncomfortable. I do not want any of you to leave here with the slightest idea that you are not welcome. Come if you want to. Our arms are open to you. We shall miss you next year if you do not come. If you go, our best wishes and support shall go with you to any place you decide upon."

President Kellmer: "I will appoint as tellers Mr. Brush and Mr. Armstrong. I have had my attention called to some printed ballots that are here. If they are written on one side they will be thrown out. The active members of the Association will have the privilege of voting."

Secretary Sperry: "The result of the ballot is: For St. Louis, 22 ballots; for Hotel Victory, 22 ballots; for Milwaukee, 43 ballots; for Celoron, 94 ballots."

The President: "Celoron is selected as the place of holding our next Annual Convention." (Applause.)

Mr. Griffith: "I could not help but watch the result of this vote with great interest. While I have friends in St. Louis and Milwaukee, I am glad that interest again centers in Chautauqua. It is a grand and glorious place. The lake, the hills and verdure cannot be equalled in the United States. I trust it will be made the unanimous vote of the Convention."

President Kellmer: "It is moved and seconded that Celoron be made the unanimous choice of the Convention. It is carried."

"The next business is the report of the Nominating Committee.

"The Committee report as follows:

"For President, F. W. Guerin.
"For Vice-President, S. L. Stein.
"For Second Vice-President, Frank Barrows, of Fort Wayne.
"For Secretary, George B. Sperry, of Toledo.
"For Treasurer, G. W. Varney, of Chicago."

It was moved and seconded that the Secretary cast one ballot for Mr. F. W. Guerin as the unanimous choice of the Convention. Carried.

President: "You will prepare your ballots for First Vice-President."

Secretary Sperry: "The result of the ballot is for Mr. Stein, twenty-eight ballots; for Mr. Barrows, twenty-six ballots."

President Kellmer: "As Mr. Stein has received the largest number of votes he is duly elected Vice-President of this Association for the ensuing year.

"The next is Second Vice-President."

Mr. Macdonald: "I wish to place in nomination another gentleman for the place, although I have no feeling against Mr. Barrows. He is a master workman, a man who unquestionably has the best interests of this Association at heart, a man who can talk on the opposite side of a question without hurting the feelings of any body or doing injustice to any one. I would place in nomination Mr. Schervee."

Mr. Hayes: "I second the nomination."

President: "The vote is, for Mr. Schervee twenty-one votes; for Mr. Barrows, twenty-eight votes. Mr. Barrows is, therefore, duly elected to the office of Second Vice-President for the ensuing year."

Mr. Macdonald: "I move the election be made unanimous."

Seconded and carried.

President Kellmer: "The next nomination of the Committee is Mr. George B. Sperry, as Secretary."

Mr. Hayes: "I move that the ballot of the Association be cast for Mr. Sperry as Secretary of this Association for the ensuing year."

President Kellmer: "You have heard the motion, that the ballot of the Association be cast for Mr. George B. Sperry for Secretary. Those in favor will signify it by saying, 'Aye.' Contrary, 'No.'"

Carried.

"It is also moved and seconded that the Secretary cast the ballot of this Association for Mr. G. W. Varney, as Treasurer of this Association."

Carried.

On motion, duly seconded, the Convention adjourned to 4.30 P. M. same day.

FOURTH DAY—AFTERNOON SESSION.

President Kellmer called the Convention to order at 4 P. M., and introduced Professor Griffith to the audience, as on the programme, to give some criticisms:

Professor Griffith: "I wish I were in a store where there were a lot of carbon prints or autotypes which I could put up side by side in order to make my talk plain to you. A man may use a flood of words and yet may convey no meaning. He may not make it plain and direct—there are so many of the subtle things that are simply suggestions. When you go into a gallery, you look at this or that picture because it somehow appeals to your sympathies. I remember, in Germany, of going into a gallery, where I found a picture of two stags, one drinking out of a pool. The sun was going down and reflected in the water like a mirror. One was drinking, while the other, with his head uplifted, watched and waited for some imaginary foe. The picture was so full of life and action that I went again and again to look at that picture. You may take the well-known picture of the officer riding into the church at Niel. It strikes you with dramatic interest. It is a picture of a man riding into the church, because the people had barricaded the door and expected the sanctity of the old church would be a protection to them. His followers come after him, and he batters down the doors, and there was a massacre inside of those sacred walls. It appeals to you, but still it is full of faults that you wish were not there; yet it is a great picture. I would like to make it plain to you. We are just above the Indians in civilization and refinement. We may be of a certain nature which wants the refinements of civilization in order to reach the best things and to enjoy them. A man's enjoyment is made up of the little things of life. If we have no refinement of nature we do not care at all for pictures and nothing for music and nothing for the comforts of life. It is that refinement that makes us wish for better things and which makes things seem hard and harsh that are not good.

"Now, some of these pictures have been brought to me, but I only picked out a very few that I could say the things I thought about them.

"1st. (Holding up the head and bust picture of a lady.) This picture shows nothing from where you are, but the head and shoulders are of hard marble or wood; the face, if you struck it with your fingers or knuckles, would send back a hard sound; it has been retouched to death, and there is nothing to give you the faintest clue of anything but a fixed stare through a hole in a bit of canvas. It is true there is a little of the drapery showing about the shoulders; that is a concentration of light without judgment and without taste. It does not display the interest and give you enough of the story so that you may read it.

"2d. (A nude figure.) This is one a gentleman spoke to me about. He says he realizes now why it stood no chance. I take that as a compliment. It is rather a pleasant figure. Really, boys have the best figures, because they swim, ride bicycles, climb trees and go untrammeled with clothing, and you will find along the river bank a hundred Adonises to one Venus. As soon as a girl gets big enough to realize that she wants to present a good appearance she commences to lace herself all out of shape and position, and to murder her feet, and the result of it is that you find very bad figures as a rule among women. The best model in the City of Detroit is a washerwoman's daughter. She has a splendid figure, full of beautiful curves, but she walks like a cow, and I feel like getting hold of her and shaking her, but it is the result of circumstances, environment and surroundings. This figure (showing another) is full of grace and beauty. It lies perfectly flat. I believe in flat shadows. I believe in flat masses of shade, but there must be some little modeling in order to give you a little bit of the texture of the skin. The picture is badly placed in the frame. It is too square. There is too much material about it. It is fussy. You would tire of it in a month. You would not like it after it hung on your wall for a little while, and yet she is in a very easy position, and I wish the man might take the same figure and same position and try it all over again, and see if he could not do something that would be more pleasing.

"This is a good collection (referring to one of the prize exhibits) that one would have the right to be proud of, but that background simply worries the life out of me. It is fussy, fussy, fussy, and that is the trouble with the most of the six pictures in the collection. They were lost sight of because of the fussiness of that same background, which intrudes upon you almost continuously. It takes time, but you should take time getting rid of that background before you commence.

"There is a very dainty and beautiful thing (referring to bust portrait of a lady), and it is a thing you see very frequently. He has made the best possible use of a good model. There is one very glaring fault to me. I will point it out to you ; that is, the line of the arm and face are a straight line. That line I cannot get away from me. He has tried to break it up with the hair, but he did not succeed.

"This (referring to head of a man) is one of the dollar and cent pictures ; one of the kind you must make to get money and live. It is possibly a good portrait, a speaking likeness, and people are pleased with it. It is a hackneyed pose. It is a portrait that you see in a hundred different galleries. It lacks the individual stamp of the man's character, which should appear in every piece of work.

"Here is a little lady, dainty and beautiful in pose, but it is a fussy dress. The starch and stiffness of it! Use soft draperies. Even if they come to the gallery with the fussy dress on, use soft draperies. You should have such a standing that when a lady comes in to have her picture taken, and has a stiff silk dress on that she is very proud of, and a whole lot of skirts underneath it, that make her look like a stick from the waist down, or two sticks supporting all this drapery, that you can say to her gentlemanly and nicely, 'My good woman, go into the retiring room and take off some of your skirts, and come to me with just simply one bit of drapery, and do not look like sheet-iron.' I will tell you a secret. When the garments for a certain play were made, the skirts were made with rubber bands, and the actress stepped into those skirts the same as a man does into his pantaloons. They were made to cling to the figure. If a man's standing is high enough he can step up to a lady and say that to her concerning her drapery.

"Here are four pictures. I have brought them up here to show you how a man makes good things and spoils the whole lot. There are twelve pictures in the collection, and they all look of a uniform quality, as if they had come out of a printing press. There is no individuality in them. There is unusual excellence of pose and in the study of his subjects. He has taken a lot of pains with them. I will not say he is an artist, but there is a chance for him to be an artist. He certainly is not an artist now. He lacks that one quality of refinement.

"Out of the dealers' exhibit, out of thirty or forty pictures, I picked up these two. They are pictures that would stand well in any collection.

"This picture is well worthy of being studied. It is one of the good things in this collection (Kellmer's). It is full of good qualities. It comes nearer being a Rembrandt than some of the pictures called Rembrandt's. The shadows are full of light.

"It has the fault of too much fluffyness again."

Mr. Griffith referred to a figure which attracted universal attention at the World's Fair, in which the drapery was arranged for special effect by a method of adaptation to the figure of the model, which he described.

The session then adjourned to 10 o'clock A. M.

SATURDAY, JULY 16TH.

FIFTH DAY.—MORNING SESSION.

President Kellmer called the Convention to order at 10.30 A. M. After the delivery of the awards, according to the report of the Judges, President Guerin took the chair at the suggestion of a member.

Mr. Bridges : "I had the pleasure of attending the meeting of the Association in Detroit, and it was there our worthy President commenced his active work for this Association as one of the judges. He was very faithful, and devoted almost his entire time during the Convention to the awarding of the prizes, taking himself from the pleasures of the meeting and working very hard. I saw his elevation there to the secretaryship of the Association. I have watched him steadily from time to time in his advancement. I would like to ask for a standing vote on the following resolution :

" ' *Whereas*, This Association wishes to express its appreciation of our retiring President ; therefore

" ' *Be it Resolved*, That we hereby present to him the bronze ' La Vagne.' "

President Guerin : " You have heard the motion, gentlemen. All those in favor will please rise. It is unanimous."

President Kellmer : " I have a little matter which I wish to place before the members—that is the announcement that Mr. F. G. Schumacher's exhibit stood third in the Grand Portrait Class."

Mr. Macdonald : " One of the chief pleasures in this life is to make other people happy ; but I feel this, that were I to accept the position that has been tendered me with the idea merely of getting happiness out of it myself I should be selfish indeed. Mr. Bridges has given you the true idea of what our President's efforts for the good of this Association have been. I hardly think I could have said more. There are a couple of points that I should like to call attention to. This Convention with many, many things against it has been educationally of great value to us. This Convention has inaugurated a series of changes that tend to its advancement. They are due very largely, and we may say almost completely, to the untiring energy of our retiring President. The question of throwing out exhibits which were unworthy of competition was a most heroic stand to take, one that if it had not met with favor would have been most damning. Our President stood for three or four days against public clamor and never wavered. I believe, gentlemen, that you will find that this one stand that was made by this man, which took incalculable fortitude, is going to be one of the history makers; it is going to be one of the things that is going to advance this Association more than anything we have yet done. The idea of having our judges absolutely untrammeled after their decision had been made, is in accordance with our national institutions. It is as though the President of the United States had said our Supreme Court must be upheld. That has been done before this time by men of fortitude, but it has not been done by men who have been in as close touch and sympathy as this man, and therefore I declare him to be greater. Mr. President, it gives me great pleasure to present this bronze to you in the name of our Association, pleasure as great as I have ever had in my life. I hope that now your official career is ended you may grow and shine as one of our lights. God bless, you, sir."

President Kellmer : " Mr. Macdonald and members of the Association, I thank you for the gift you have presented to me. I appreciate the fact that I have tried to do what was right. (Applause.) We all make errors. The next Executive Board can improve on the start which we have made in the last few years. There are many little ups and downs a man has when he fills a position on that Board ; many little jumps and kicks, but with all that, I have had three years of the most enjoyable time with you all. I thank you for your present."

Mr. Armstrong : " In view of the high class of work they have done for us this year I move you, sir, that the officers of the Association be presented with a special gold medal for their meritorious services for this Association."

Motion seconded and carried.

Mr. Bridges : " I move that the thanks of this Association be given to the citizens of Jamestown, and to the press of Jamestown for their courtesies since our arrival."

Seconded and carried.

Mr. Macdonald : " I would have preferred to express this sentiment while more members were present, but I know they all join me. I wish to remind you, ladies and gentlemen, of the marvelous generosity, uniform fairness and indomitable energy exerted in our behalf by our very dear friend, Mr. Abbott. (Applause.) I wish we could do something more real than to simply say we thank you, and I feel ashamed to say words of praise to such a little gathering. I wish they were all here. I move you, Mr. President, that the unqualified thanks of this Association be tendered to Mr. Charles Abbott."

Seconded and carried.

Convention adjourned.

From notes by
W. Kay Tewksbury,
Official Stenographer.

"In these lenses the glasses are usually about $2\frac{1}{4}$ inches in diameter. Now, it is obvious that a pair of such lenses cannot be fixed on a camera front with their centers, the orthodox $2\frac{1}{2}$ or $2\frac{3}{4}$ inches apart. If we take shorter-focus *carte* lenses, and sacrifice the pleasing perspective, we shall find that the glasses in them are about 2 inches, and over, in diameter, and the brass setting, even when the flanges are cut down, renders it impossible to get their centers within the prescribed distance apart. Hence it will be seen that, if a bi-lens camera be used, short-focus lenses become imperative if the usual portrait combinations are employed.

"We will now point out the advantages of single-lens cameras for the work. One of the first is that no outlay for additional apparatus is necessary as would often be the case if a bi-lens camera were used. The ordinary repeating back camera is all that is necessary and the only thing to be done to secure the stereoscopic negative is to move the camera laterally on the stand $2\frac{1}{2}$, or $2\frac{3}{4}$ inches, between the two exposures, whatever may be the diameter or focus of the lens. It is not well to exceed the former distance unless a lens of unduly long focus be used. In taking the two pictures the right-hand one should be taken on the left half of the plate by sliding the back in the reverse position to that in which the camera is moved. This obviates the necessity of reversing the prints in the mounting of them; also the negatives can then be printed from in an ordinary printing frame without cutting or reversing the negative when transparencies are desired. It is as transparencies that we would recommend that stereoscopic portraiture be reintroduced rather than as paper pictures, as then the novelty will be the greater.

"We commend the subject of stereoscopic portraiture to those professionals who are at the present time complaining that they are not overrun with business, as a means of increasing it, particularly as they have all the requisites at hand for carrying out the work. The more especially do we do this, as there is every prospect of the stereoscope once more becoming popular in this country, seeing what is being done abroad."

THE ABOLITION OF THE DARKROOM.

By Rev. F. C. Lambert.

FROM time to time various attempts have been made to overcome the discomfort and inconvenience of having to develop our negatives in a room dimly illuminated with orange or ruby light. Mr. Howard Farmer has recently demonstrated that development may be carried on in a room lighted by electric light. I have repeated some of his experiments, and successfully developed plates by a naked gas flame, and also shaded daylight. This step points to so desirable a goal that many readers will, no doubt, be glad to know how these experiments may be repeated. Mr. Farmer's method essentially consists in adding some material to the developing solution that renders it non-transparent to the actinic rays of the light to be used, but, at the same time, does not sensibly interfere with its developing property. As Mr. Farmer's original communication will appear verbatim in due course, it may, perhaps, prove the more interesting if I give in detail my own repetitions and slight modifications of his methods:

1. *Caramel Method.*—In a conveniently large saucepan I put 2 ounces of white lump sugar, and add just enough water to wet the whole; *i. e.*, about $\frac{1}{2}$ ounce of water is sufficient. The pan is put over a gas stove and slowly heated, stirring all the time from beginning to end of the whole operation. As the temperature goes up to

100 degrees Cent., the water gradually evaporates and then boils away. Raising the temperature to about 120 degrees Cent., we have a dry paste which, at about 150 degrees Cent., melts to a pale yellow fluid. This darkens in color at about 170. One must now be careful not to raise the temperature too suddenly. Our aim is to convert the sugar into caramel by cooking at a temperature between 190 and 200 degrees. If the heat exceeds this, the sugar is apt to char and become insoluble; hence the need for constant stirring. Presently the dark chocolate syrup will begin to thicken. After about ten minutes more the pan may be withdrawn from the heat and allowed to cool. We now find a ch. caramel which solidifies as a dark, opaque, brittle mass. When the pan and contents are cooled down to something below the temperature of boiling water, but not before, we may add between 6 and 7 ounces of warm water, and slowly digest, raising the temperature, if needed, almost to boiling point. We have now a dark-colored solution which, when examined in a small tube or measure, appears of deep red color. (It is, perhaps, as well to caution the inexperienced and say that the pan should be large compared with the bulk of sugar, for at a certain stage it froths and bubbles up to eight or ten times its original size. If it boils over a conflagration may result.) Now, to develop, say, a quarter plate: Prepare your pyro or other developer to such an extent or quantity that when the plate is in the dish with the developer there will be not less than ¼ inch depth of fluid above the sensitive film. This done, add enough caramel solution to the mixed developer, so that when looked at in a graduate about an inch in diameter you can only just see the flame of a gas jet or lamp as a deep red color. This means about 2 drams of caramel solution for a quarter plate. If black dishes of ebonite or papier maché, are used, you reduce the danger of fog by strong reflected lights, such as may arise when using porcelain or glass dishes. The developer is now poured into the dish and covered over with a bit of card; *e. g.*, lid of plate box. Alongside is put the dark slide containing the exposed plate. Over all is thrown your focusing cloth folded double. Then using some care to avoid light creeping in, you, by feeling, transfer the plate from the holder to the developer in the dish. The cloth and dish cover may now be removed. Looking down at the plate through the colored solution, you will, with a fairly good light, just be able to see the image. To rock the plate, replace the dish cover or card. When development is complete, the plate is dextrously transferred from the developer straight into the fixing bath, and rocked once or twice. Thus, all the operations, after exposure, may be conducted in a well-lit room. Of course, all reasonable care must be taken to prevent light getting to the plate while it is being transferred from the slide to the developer. In place of the focusing cloth, an old black coat will be found just the thing, for one's hands may be passed up the sleeves, and so form an effective light trap. Caramel, apparently, has no staining action on the film, and may be used with any developer.

2. *Uranium Nitrate and Pyro Method.*—Let the reader take any ordinary solution of pyrogallic acid, moderately dilute, and add to it drop

by drops a solution of uranium nitrate; he will observe that the mixture is of a deep red color. For certain other purposes, I keep uranium nitrate in a 20 per cent. solution, and I find that 1 dram of this 20 per cent. solution amply colors 4 ounces of pyro developer. And from one or two experiments made it would seem that uranium does not work as well with pyro ammonia as with pyro soda. Having obtained the colored mixture, the procedure is that already described with caramel.

It will be understood, then, when employing this method, rather more pyro than usual should be added to the developer. The uranium pyro color mixture may be used with any other developer with which pyro works; *e. g.*, metol pyro or quinol pyro. It hardly needs any words to point out that, when away from home, this method, which enables one to develop a trial plate now and again in one's hotel bedroom by candle light, is a power of considerable practical importance.

SOME LENS TERMS EXPLAINED.*

By G. E. Brown, F.I.C., F.C.S.

PHOTOGRAPHIC optics is never one of the "fortes" of the budding amateur, who is, no doubt, often perplexed over the technical terms which learned writers glibly use in regard to lenses. Hence this short note to help, it may be, the photographic aspirant along the road by giving some practical significance to the fearful and wonderful terms aforesaid; "which the same," to adopt the Bret Harte phrase, "I would rise to explain."

Single lens (called also landscape view, etc.) does not necessarily mean a lens consisting of one piece of glass, but most usually a lens composed of two or more constituent pieces cemented together (*vide* "Achromatic"). It rarely works at a larger aperture than *f*/11, and gives more or less curved distortion to straight lines near the edges of the plate. This latter defect is oftener than not a theoretical bogey, and for the majority of subjects a single lens answers perfectly, especially if one of fairly narrow angle be used; say 7 to 10 inches' focus on a quarter-plate.

Doublet (rectilinear, rapid rectilinear, etc.) consists of two "single" lenses with the diaphragm placed between them. It gives no distortion of straight lines, and works at an aperture of about *f*/8. Lenses which work at large apertures, such as *f*/6, are sometimes known as "extra rapid rectilinear," "euryscope," etc. The component lenses of a doublet may often be used singly, giving lenses of much longer focus (*vide* "separable," "symmetrical").

Achromatic is a term applied to a lens the visual and actinic foci of which are coincident. This means that if we focus by the rays which produce the image on the screen, *i. e.*, by the visual rays, we are certain of getting a sharp picture when the image falls on the sensitive plate (in which latter case the action is due mostly to rays invisible to our eyes or to "actinic" rays). This coincidence of visual and actinic focus is not possible in a lens of a single piece of glass, and, even with lenses which have been corrected by cementing a second lens (of different kind of glass) to the first, the focus for chemical rays is often not the same as that for visual rays. Sometimes microscope eyepieces are used for photographing, and then, after fine focus (visual) has been obtained, the lens must be slightly moved (as ascertained by previous trial) in order to bring the plate into the focus of chemical rays.

Aplanatic.—This means that a lens is free from spherical aberration, a defect due to the curved forms of lenses. An aplanatic lens is one which gives good definition of objects in one plane at full aperture, which definition is not improved by stopping down, a procedure which, in the case of a lens possessing spherical aberration, greatly improves the unsharp definition given when full aperture is being used. The practical significance of the difference is this: With an aplanatic lens you may focus with full aperture and then stop down, but with many lenses this plan would result in unsharp definition.

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* *The Amateur Photographer.*

Anastigmatic.—This is the latest "blessed word" of the optician. It means that in a lens so described the defect of astigmatism has been reduced to a minimum. What is astigmatism? In practice it means that with an astigmatic lens it is impossible to obtain sharply defined images of vertical and horizontal lines (especially at the edge of the field) at one and the same time. It was generally to be found in lenses of flat field, but now by the aid of the Jena glass it is possible to produce anastigmatic lenses of very flat field.

Separable.—It is not possible to use with good results the components of all rectilinear lenses as single lenses. Lenses the separate factors of which are available for use are known as separable, as distinguished from others in which the separate components are left uncorrected for certain defects, so that it is only when the entire instrument is used that its good qualities become apparent.

Symmetrical.—This term applied to a lens of the rectilinear type means that the two components are similar, *i. e.*, of the same focus. In many lenses presumably symmetrical, this is only approximately true.

Dis-symmetrical, on the other hand, means that the two components of a rectilinear lens are unequal in focus. Lenses of this type are becoming popular in consequence of the choice of focus which they place at the disposal of the photographer who possesses the one instrument.

* * *

IN the multitude of odd shapes and styles of photographs it is extremely convenient to have mounts that can be used equally well for vertical or for horizontal pictures. This need is now supplied by the A. M. Collins Manufacturing Company, in their new "Uniola" card mounts. They are in three sizes, and in the rich, quiet shades that harmonize so well with fine modern photographs. They have a light, embossed border, and square, beveled edges, and are finished with the exquisite neatness that is a characteristic of the products of this house.

* * *

WE take this method of informing our readers that a No. 9 Ross Universal Symmetrical Lens, equivalent focus 20 inches, diameter of lens 3¾ inches, has lately been stolen from the rooms of one of the prominent camera clubs of the country. When stolen this lens was attached to camera front-board 8½ inches square, with Low shutter fastened to the back of it.

Any information regarding this property will be gladly received at the office of the BULLETIN, and transmitted to the loser.

* * *

THE Pacific Coast, the region farthest distant from the place of Convention, was represented by no less than fourteen photographers.

Chicago and the Southwest sent goodly numbers, and the East not as many as last year. THE BULLETIN Party was a great success in all ways.

* * *

All copy for September BULLETIN *must be in our hands by August 15th.*

ANTHONY'S

Photographic Bulletin.

EDITORS:

Prof. CHARLES F. CHANDLER, Ph.D., LL.D.
W. I. SCANDLIN.

Vol. XXIX. SEPTEMBER, 1898. No. 9.

FALSE NOTES.

WE frequently find of late, suggestions, directions and formulas intended to lead to the production of photographs that resemble something else than photographs and apparently with nothing to recommend them except the fact that they pose for that which they are not. Why should we endeavor to make a photograph resemble a copy of an oil painting, for instance?

An oil painting is purely the result of handwork, is subject to the wishes of the artist entirely in the matter of composition, idealization, and the infusion of sentiment and personality to any degree, while photography is not subject to any of these conditions, but is a truthful recorder of aspects as they are presented to the lens.

What good reason is there for photography to descend from its plan of action as a recorder of facts, to pose as a producer of pictures, which, as records of fact, cannot be approached by handwork, and which from the very nature of truthfulness inherent in photography cannot be possessed of the elements of art that go to make a picture?

Must photography apologize for living?

Is there not sufficient room for it to exist for its own merits, or must it be made to play the hypocrite like so many other things in the world of to-day.

If it must, let it pose for something higher rather than lower than itself, and as a painting is an artist's attempt to copy what he sees with his eyes, a photograph of his work will be of necessity a second remove from Nature which can never be as good as a direct result. Why, then, try to make a picture resemble an interpretation at second hand, when it would be easier and more in harmony with the characteristics of the process to do it at first?

It is as if one tried to do what once actually came to the writer's knowledge, where a party had spent time and money in an endeavor to

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produce an etched printing plate in intaglio which should have a mathematical cross hatching of lines to resemble an ordinary half tone print, in this case his intaglio plate would have been infinitely more expensive than a straight half-tone block, and the cost of printing would have been increased manyfold, while his finished prints would only have been copies of the half-tone effect after all.

This incident brings us to the false note, which publishers so often strike, and many of them not by accident, in putting their works upon the market, and advertising them broadcast as being illustrated by photogravure when in reality the illustrations are printed from relief blocks.

This practice, which is not as prevalent as it was some years ago, owing to the increasing familiarity of the public with the reproductive processes, is a nefarious one, and every publisher who stoops to it should be made to suffer.

It seems as if a remonstrance would be in order against what in some quarters seems to be a growing tendency to publish pictures of the nude simply because of their nudity. A notable example was to be seen in a recent issue of a certain journal which, for lack of decency, entire absence of either photographic or artistic merit, and utter disregard for those qualities which decent people are wont to find in illustrations, it would be hard to equal. Let us see to it that, in so far as we can add anything by our influence and example, it be to keep our art clean and dignified.

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One of our foreign contemporaries, in an editorial note, strikes a responsive chord in an article on the meagerness of the literary work accompanying much of the reproduction of photographs in the best of our modern periodicals. It says, quoting a recent writer: "There is, in fact, as we have observed, a well-grounded fear that, though a most praiseworthy amount of attention is often bestowed on the art side of an illustrated newspaper, the literary side is somewhat markedly neglected, the matter being scrappy, inadequate and scamped." This is a complaint that might be applied to many papers in this country, although there are some notable exceptions, and the suggestion thrown out by our English friends, that more attention to the study of photography by writers seems in a few cases, at least, to have been availed of in advance. It is, perhaps, self evident that a writer, whose education and training has been in the line of newspaper or magazine work, can equip himself for the practice of photography, as an adjunct to his literary efforts, more readily than a professional photographer can become proficient in the field of literature, and we think the time is near when the successful journalist will be able to handle a camera with the same facility that now appertains to his pen—all of which we believe will be to the advantage of both the artistic and literary qualities of the press.

Items of Interest

THE Editors of the *Photogram* are engaged upon a work which, when completed, will undoubtedly be of great service to publishers and professional photographers in all parts of the world. It is no less than a classified and indexed list of the hundreds of thousands of standard photographs in existence and available for illustrative purposes. A large amount of copyright law and information will be included in the publication. The amount of labor in the compilation of such a work as this is prodigious, and we hope our English cousins will find themselves amply repaid in the end.

IT is reported in the English photographic journals that an important feature of the convention of the United Kingdom, both this year and last, was the taking of an animated photograph of the members, at some period of the proceedings. Which reminds us of one notable point of difference between the English convention and our own annual convention in this country, which is the noticeable abundance of hand cameras in evidence at the former and their almost total absence from the latter. A very pleasant feature of our own meeting this year, however, was the group picture made by Mr. McCormack, of Baker's Art gallery, of the banquet in front of Hotel Greenhurst, Wednesday evening. This picture is a capital one, and we understand that copies may be obtained of the publisher.

AN interesting sign of the times, in connection with the recent war, is reported by the Lovell Dry Plate Company, who have received a good-sized order for Climax plates to be shipped to the United States Government at Porto Rico.

IT is probable that Mr. Halstead, the photographic correspondent arrested in Cuba in the early stages of the war, and sentenced to nine years' imprisonment for photographing fortifications, is in the way of having a commutation of his sentence, unless the influence of the British Foreign Office has lost its power, as a strong effort is being made in English official circles to that end. It certainly seems, unless facts exist of which the public is not informed, as if the punishment was out of proportion to the offence.

THE BULLETIN has received cards from Frau Richard Burnier, of Godesburg, Germany, announcing the engagement of her daughter Christine Burnier to Herr F. Paul Liesegang, of Düsseldorf, on July

3, 1898. We offer our best wishes to the young people, and hope for them a long and happy life.

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Writing of the exquisite little study of "Toil" exhibited by Mr. Geo. E. Tingley at Celoron, which took first prize, and honorable mention in Class H, Eastern Division, Professor Griffith says:

"It impressed me as being a most delightful bit of nature, and so admirably taken advantage of at the right moment.

"I particularly commend the judgment of the photographer, for I cannot think it was an accident in selecting a hill-top for his picture, by which he secured a low horizon line, which is one of the eminent characteristics of the German school who made this sort of work so poetic and romantic. Then, too, the idea of taking the horse, harrow and man on the turn of the furrow (I do not know that this is just the right term—furrow—in this connection, but it will express that which I mean) gave to the horse and the whole ensemble of the picture a variety of curves and lines which could not possibly be secured at any other point, particularly if he was going straight away from you.

"Of course, I realize that in all photography much depends on the hour and certain circumstances over which the photographer can have no possible control, and yet the true artist is expressed by taking advantage of circumstances. The man who does this with a brush can control, add to, take away the various things that will make or mar his picture. Not so with the photographer, and that is why I always feel that the man who makes a success of a genre picture of this character deserves more than a special comment. The whole thing was full of that poetic and mysterious romance which appeals to a people, and which has been the strong element in the work of the same character produced by the best masters of the Old World."

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A suit which bids fair to excite a good deal of interest all over the country has been begun by the Merchants' Association of New York against the Adams Express Company to compel the latter to bear the expense of the war tax stamp on the express company's receipts. In whichever way the decision goes in this case it will be of great interest to shippers and business men in general, as it will be used as a test case with the other companies throughout the country, and will probably settle the question for all.

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The National Association of Photo Engravers, whose annual convention was held at Brighton Beach August 11th, 12th and 13th, is to be commended for the exceedingly handsome programme which was furnished by the committee in charge. It was unusually attractive in design, and artistic in execution. The following officers were elected: Lon Sanders, President, St. Louis; F. A. Ringler, First Vice-President, N. Y. City; C. H. Brandon, Second Vice-President, Nashville; L. H. McKinstry, Third Vice-President, Minneapolis; C. C. Cargill, Secretary, Grand Rapids; B. W. Wilson, Jr., Treasurer, N. Y. City. Executive Committee: A. C. Austin, N. Y. City; J. H. Behrens, Chicago; E. A.

Kendrick, Buffalo; L. B. Folsom, Boston; H. W. Weisbrodt, Cincinnati; H. Schuessler, Philadelphia.

The next annual meeting will be held at Put-in-Bay, Ohio.

* * *

Now that the convention is over and an opportunity is presented to review the work of the officers and stenographer as evidenced by the reports supplied to our confrères of the photographic press, it is evident that the convention of 1898 was the record breaker in so far as promptness in furnishing reports of the meetings is concerned. Full reports having, we understand, been in the hands of all the journals within a very few days of adjournment, all concerned are to be congratulated on the efficiency of their efforts.

* * *

A LEGAL decision is reported from Paris, in which certain photographic portraits are classed as actual works of art, and not mere automatic records by the action of light, the decision reading as follows: "Although it is light which actually fixes the image on the sensitive plate, the operator determines the aspect of the original to the light, and he by his experience obtains the natural pose which characterizes the photographs of the complainant." It seems to us that this recognition should have value in connection with copyright suits for pirating photographs hereafter in the way of fixing the amount of damages.

* * *

THE annual convention of the Photographers' Club of New England, which closed on the 29th of last month, was a very successful one, and was well attended. A special feature of the convention was a series of art talks and criticisms by Mr. Darius Cobb, of Boston. The special prize for photographers outside of New England was awarded to Mr. Pirie Macdonald, of Albany; Mr. Elias Goldensky, of Philadelphia, taking second prize in this class. The Grand Genre prize went to Mr. George H. Van Norman, of Springfield, Mass. In Class A, six portraits, 13 inches or larger, the three prizes were awarded as follows: H. Schervee, of Worcester, first; Charles W. Hearn, of Boston, second; and H. E. Cutler, of Barre, Vt., third.

Class B.—Twelve pictures, to be 7½ inches and under 13 inches, first, bronze medal; won by Whitney & Son, Cambridge.

Class C.—Twelve portraits, cabinets or smaller; diplomas awarded to W. H. Brannock, of Norwich; George H. Van Norman, of Springfield; W. J. Freeman, of Lowell.

Class D.—Twelve portraits, no restriction as to size; first, bronze medal; second, diploma; from towns of 15,000 or less; won by D. E. Rowell, of Lancaster, N. H.; E. C. Littlefield, of Arlington, second.

Class E.—Twelve portraits, no restriction as to size; first, bronze medal; second, diploma; from towns of 5,000 or less; won by George E. Tingley, of Mystic, Conn.; C. S. Sherman, of Windsor, Vt., second.

Class F.—Views, interior or exterior, six pictures, no restriction as to size; first, bronze medal; won by George E. Tingley, of Mystic, Conn.

The Northwestern Photographers' Association closed its convention at Lake Harriet, Minn., on the 4th of August, after one of the most successful meetings in its history, more than 150 members being present. The following officers were elected for the ensuing year: President, P. J. Nelson, Anoka; Vice-Presidents, C. A. Zimmerman, St. Paul; H. L. Olson, Montevideo; J. Q. Miller, Aberdeen, S. D., and J. Blackburn, Fargo, N. D.; M. J. Fritz, Waterloo, Ia.; Secretary, John Phillips, Lake City, Treasurer, J. F. Fuller, Albert Lea.

General disappointment was occasioned by the enforced absence of Professor A. H. Griffith, of the art exhibit at the Omaha exposition, he being unable to attend. Addresses were delivered by members of the association during the afternoon.

Prizes were awarded as follows:

Class A.—Large portraits: first prize, T. Zweinfel; second prize, Lee Brothers.

Class C.—Not smaller than cabinets or larger than 10 by 12; first prize, Lee Brothers; second prize, J. Q. Miller, Aberdeen, S. D.

Class F.—Retouchers; first prize, Mr. Hobner, Minneapolis; second prize, Miss Mamie Peterson, Red Wing.

Class D.—Views; one entry; Winifred C. Porter, Minneapolis.

Genre Class.—Pictures illustrating historic characters, one entry; Lee Brothers.

Nineteen members received rating of fifty points or more.

◆

The convention of the Photographers' Association of Missouri was held in Chillicothe, Mo., on the 9th, 10th and 11th of August, and was well attended. Professor Griffith made an address and criticised the work of the members, and entertainment of various kinds was provided by those in charge.

Officers for the ensuing year were elected, as follows: G. W. Curtis, Kansas City, President; F. N. Truby, Jr., Boonville, First Vice-President; C. A. Stewart, Carthage, Second Vice-President; L. F. Hammer, Jr., St. Louis, Secretary; Miss Belle Johnson, Monroe City, Treasurer. The convention selected St. Louis as convention city for next year.

◆

The convention of the Ohio Association will be watched with interest as they make the innovation this year of admitting amateurs in competition in many of the classes, and award prizes on the art merits of the pictures.

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The Trans-Mississippi Photographers' Association held its opening meeting in Omaha, Neb., on August 9th. The organization is a temporary one incident to the exposition, for the purpose of bringing together photographers from different parts of the country who may be at the Trans-Mississippi exposition. In connection with the regular sessions there will be displays of the work of visiting photographers. The session will continue three days, and the local committee on arrangements has prepared a programme of entertainment for the visitors.

ADDRESS OF EX-PRESIDENT C. M. HAYES, BEFORE THE SCHOOL OF PHOTOGRAPHY, AT PHOTOGRAPHERS' ASSOCIATION OF AMERICA CONVENTION, JULY 12, 1898.

A SCHOOL of photography is a school in which we should have practical and serviceable lessons, and to obtain this it is necessary to have an experienced and practical photographer, chemist or artist to give the lessons, and herein arises a formidable obstacle in our pathway, as I presume that nine-tenths of the photographers from whom we can all learn something find it exceedingly difficult to tell what they know, and how they do their work, couched in language lucid and plain enough, so that one will not lose the value of their ideas. I have listened to and read papers and articles calculated by the speaker or teacher to advance the photographer in knowledge and better him in his work or his business, and they were absolutely valueless, principally because the speaker was speaking or writing beyond what actually happens in his regular every-day business. Had he confined himself to what he actually knew to be true from experience, instead of indulging in vague theories and untried formulas, his efforts, no matter how limited, could not but help and benefit his listeners or readers. It ought to be possible in these schools to obtain all that one could from a personal visit to the photographer in his studio, and we all know what that means; his mounts, prints and manner of doing business, manner of displaying pictures, and all the little things that interest the photographer. Practically the results of what a man hears is what he wants to say and take hold of. The speaker may tell you that in grouping, the pyramid form operates to lend beauty to the picture, that contour lines should always be observed, massing of light and shade and numerous other qualifications are to be sought for, but you want to see him make his groups and illustrate his ideas in a practical way before your eyes if you are to get a real benefit from it. He may tell you that in making a statesman's photograph you should give him a statesmanlike, dignified pose, with a light that brings into prominence all the character and dignity which such a face must possess ; you go away unsatisfied without you have an example of what he considers as such. You understand, of course, that what he has said is true, and that your picture of such a person should possess all these qualities ; you want something more substantial however ; you want to know how a man weighing 250 pounds, bald headed with light full blue eye, all nose, ruddy complexion or face flushed, should be lighted or how he should be posed in order to make a pleasant picture. All the words which it would be possible for you or me to write would not explain it as well as to show the subject posed and the negative made from him before your eyes under the skylight.

First of all the successful photographer, if he makes a success of his business from a financial standpoint, must make a pleasing representation of the subject before him. I do not mean by this that the subject must be flattered to such an extent that the pictures are unnatural, but the photographer must secure a picture of the subject at its best. If the subject is stout it should be taken in such a way that avoirdupois be not the principal feature of the picture. We all know that the sitting posture, with a bright light and a front view, tends to exaggerate the fleshiness of such a subject. On the contrary these conditions with a thin subject would be all right. We know that the similarity of a certain class of subjects make the same set of rules applicable. The value of speed in handling your subjects is obvious to any one who has ever noticed the subject who is nervous and tires easily. An exclamation calling the attention of the subject to any particular bad habit will intensify this tenfold. The only manner in which this can be avoided is to get the mind of the subject on something else in conversation with him. In posing the hands, keep the subject from realizing, as far as possible that they are being posed. In so far as you carry this out, the more successful you will be in getting the desired position. However graceful the subject may be, the very moment you call his or her attention to the fact that you desire a certain position of the hands, that moment it begins to feel unnatural, stiff and strained and the muscles become rigid. Again referring to the successful photographer as one who works with exceeding rapidity and goes to his work with a definite object in view, and as one who had made up his mind as to the sort of a picture he is going to make of the subject before he commences, the subject will, with his suggestions, drop into position, and the picture is made before they have time to think where they are. A round-shouldered subject with the head drooping forward, makes a side view practically impossible. I am inclined to think that the average posing chair has about as much to do with making the subject feel stiff and unnatural as the work of the photographer himself. I have used in eight years' operating an ordinary chair with a long and flat cushion that can be rolled up to any thickness desired by which the subject's shoulders can easily be brought forward or laid back to any desired position, and I have used this when I have had two patent posing chairs in my gallery all the time. I believe every photographer sees in his pictures certain things about his subjects' faces which appear exaggerated in the proof, especially if these points be bad; for instance, a subject with small eyes, under a skylight with a bright light, will appear to have smaller eyes in the proof than he has in reality unless some artificial means are employed in making them up. The best thing I have ever used is crayon sauce applied with a crayon stump ; this can be put on the under eyelid close to the eyelashes so softly and carefully with a crayon stump that it will be hard to detect it, even with the knowledge that it has been put on.

A more pleasing picture of a person with puffy heaviness under the eyes and around them can be made by the use of a little yellowish powder applied with a chamois skin, being careful not to get it on too heavy. This is also true of a person with a very prominent double chin. The pictures can be brought down to any degree desired by application of this powder. A white, shiny bald head and a reddish, brown face is a difficult thing to manipulate ; this powder applied carefully makes a far more pleasing picture than it is possible to produce with a head screen. Who has not had a subject with a good head of coal black hair with a tuft of white here and there, which looks as white as the collar because of its surroundings, but which with a little of this powder applied produces the appearance of naturalness.

All of us have a tacit understanding that the pictures we make of the ladies have to contain all the points of their beauty, and I do not believe there is a photographer living who is not happy in giving them all they want in this direction. We find a subject with drooping corners of the mouth, which at the moment of the sitting, in the unusual surroundings of the subject before a stranger, and going through what to the photographer is a mere matter of business, is apt to be at its worst expression. With a little touch of this crayon stump (just a trifle, understand) at the corners of the mouth upward, so as not to detract from the likeness, you will assist materially in securing the desired result. The crooked mouth occurs with obstacles in the way which are worse, if anything, than the crookedness itself. The crooked mouth sometimes occurs in people with unduly prominent noses and exceedingly high cheek bones and low, flat, receding forehead. This subject makes a very unsatisfactory picture. Again the application of the crayon stump, combined with touches of the pencil and scraper will play an important part. Pardon me for indulging in these illustrations, which I presume many of you are familiar with, but they are things which are perhaps new to the newer class of photographers. At least I see by a good many photographs that they are forgotten or not deemed necessary.

Fully seven-tenths of our subjects are ladies and children. The photographer who has done business successfully, realizes how important it is to have his products present the subjects in their best light, and referring to these artificial means, cannot be condemned because the subject will not stand it, as I presume some of you are aware that artificial means of beauty are not always confined to the operating room for the picture. With children we have not the same latitude, and we do not need it. A mother or a photographer who speaks of the picture to the child until after the negatives have been taken, in nine cases out of ten has made a mistake. Her toilet is made, and she is rushed into the operating room, a strange sight for the child, and a stranger to greet her. The mother informs the little one it is "going to have its picture taken," and "that is the man who is going to take it." No matter how much of a winning smile or coaxing manner you assume, your subject is a "goner." The awful something which the child expects at once looms up before it in the camera. The strange surroundings and the unusual light of the room startle, and fully ten or fifteen minutes are lost and sometimes longer time in winning the child's confidence, and then sometimes you have to stand back of the camera and wait the chances of a shot. The man without tact or love of children should quit making children's pictures. If they are too small to take in a particular pose, without some definite idea which you have, put them up high enough so that the baby will not look like a bunch of dress with a pair of eyes sticking out of it. Get them up high enough so there is a connecting line between the head and the shoulders.

I have never let a child come out of the operating room yet without securing a negative. That they have not always been good I do not deny, neither do I consider myself a prodigy in making children's pictures, but I have learned at the cost of a good many plates that at the outset certain rules have to be observed, and in some cases it takes new ones and a good many of them. I have ofttimes wished that the subjects had gone into a gallery further down the street, but when they are in, do not give it up. It is your duty, not only to yourself and your business, but it is your duty to the parents. No matter how exasperating the child may be, or how unsatisfactory your result may appear sometimes, stick to it, for we cannot realize too well what a priceless thing the photograph often is to the parents. Resitting, when you have obtained what you consider excellent work, is especially exasperating ; do not make the resittings at all or else go into the operating room as pleasantly as when you made the first sitting.

As to the question of appointments. Print upon every bit of stationery you have and on your business cards that it is necessary in order to obtain a sitting with you, that appointments should be made. It will not cut out a single sitting, but in time will make it easier for you, as a hurried operator annoyed by the frequent kicking of those who have to wait, especially if his sittings all come in a bunch, cannot work at his best. Talk it in the office when people come in to examine your work. If you do not have but two sittings a day and they both desire to sit at the same time, and you have got to accommodate or lose them, put them ten minutes apart, and you have carried out your rule. Do not complain or be irritated if a picture is brought in for you to make one exactly like it for your customer. It is a compliment to you if it is yours, and one of the best business chances in the world if your competitor made it. You can then tell why he lives and how he does it. Never criticise a competitor or his work to a customer. It is bound to react on you. Avoid speaking of him at all if possible, but if you must, *praise* him, and remember that the worst criticism you can make of him is faint praise. In my own experience I made one of my best customers, and one who had been a lifelong customer of another gallery, through an elegant dressing down that he gave me. It was a good lesson to me. It happened twelve years ago, and I have never forgotten it. In the light you hold your profession, the public will be apt to hold you in the same light.

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It is probable that statistics of the war, when collected, will show that radiographic photography has been of great service in the saving of life from wounds, and it may safely be predicted that apparatus for this work will be more liberally supplied and its use availed of more generally as time goes on. So with the increasing efficiency of engines for the mutilation of humanity come improved facilities for the mitigation of suffering.

THE LOVELL DRY PLATE COMPANY'S NEW HOME.

"NOTHING succeeds like success" is an old saying, the truth of which is frequently demonstrated in every-day life. A notable example of its application may be found in the rapid advance in popularity of the Climax dry plates, made by the Lovell Dry Plate Company, whose works were for a number of years in Portland, Me., where a fair output was made from year to year under circumstances not the most favorable for the carrying on of a manufacturing business.

Early in the present year Mr. C. O. Lovell built and equipped at New Rochelle, N. Y., a very complete and perfect factory for the manufacture and shipment of the Climax plates, and the daily record of his establishment shows the wisdom of the move.

The new factory is situated at New Rochelle, N. Y., on the line of the New Haven and Hartford Railroad, within a few blocks of its freight depot, through which direct shipment may be made to New York City and all points throughout the country. The factory occupies a very sightly position, facing the railroad, and its signs may easily be read by the passer-by on the trains.

The building is of wood, two stories and basement, and furnishes about 18,000 square feet of space on its floors. The engine house and boiler room are detached from the main building, thus securing freedom from dirt and dust, and also from the vibration incident to the running of the machinery.

The arrangement of the various rooms for washing glass, coating and drying plates, making emulsions, etc., is as nearly perfect as can be imagined ; each operation being carried on in different rooms which are arranged in sequence, so that from the moment the glass is received at the lower basement door it undergoes a steadily progressive treatment from room to room, without any retracing of steps or losing time in handling, until it reaches the packing and shipping room at the very extremity of the building on the first floor.

The power is provided by a 40-horse-power engine which drives the electric dynamos and machinery for power and heat or ventilation. The heat is obtained from the exhaust steam of the boiler, which is also arranged in such a manner as to return to the boiler for use again the condensed steam from the pipes.

The entire building is lighted by electricity, each floor being separately controlled by switchboards.

Air is supplied to the drying rooms through a shaft running from the roof to the basement, and is discharged through radiators, which dry and heat it before use. Special machines have been installed throughout the different rooms for economy and special adaptation to their work, one of which is peculiarly ingenious ; by the use of this machinery, plates, before coating, are thoroughly cleaned; after which, in the same machine, they are coated with a substratum. It is capable of handling thirty 8 x 10 plates per minute. After cleaning and coating with a substratum, the plates go into the drying room, where they are stacked in racks for drying. Direct communication from the drying room into the coating department is provided, where the sensitive coating is flowed over the plates by a machine which regulates the temperature of the emulsion and its flow according to the speed at which the plates travel on a carrier beneath it. Out of this room they pass through the drying room into the cutting room, where they are cut and boxed for packing. After leaving the dark chamber they go into the hands of operators, who label and pack them in cases, after which they are stored in the store-room.

On the second floor of the building is a large skylight room, in which plates from the various emulsions are tested by Mr. Lovell himself before leaving the factory. On the same floor with this skylight are the various rooms for mixing and cooking emulsions: the ice chambers, by which the temperature is kept at a given point, and the filter room, where the emulsion is forced by air pressure through the filters ready for coating.

The entire factory gives one a sense of the importance in which cleanliness is held; everything in and about it being spotlessly clean, and bright in such parts of the work rooms as will admit of the light being present.

A repair shop is a prominent feature of the factory, and from it many of the machines have emerged under the personal supervision of Mr. Lovell.

The new factory is capable of turning out eight times the product of the old one, and employs a large force of trained and competent employees.

THE INFLUENCE OF PHOTOGRAPHY ON ART.*

[Abstract of Paper read before the Camera Club.]

By Valentine Prinsep, R. A.

I WILL begin by at once acknowledging the extreme debt that we artists owe to photographers. You are, so to speak, the apostles of truth—truth without any subterfuge, "the truth, the whole truth, and nothing but the truth." You have, with a care and a skill which we in our art might envy, from the dawn of photography progressed naturally until you have nearly attained perfection in representing Nature. I remember the time when photography was thought to be a very grand thing, and yet, when you saw a photograph of a building, it invariably tumbled inwards; through your skill you have obviated all that, and now, when I see photographs of elaborate foreign buildings, I am agreeably surprised to find that they stand upright. I had thought previously that, as you represent truth, they must have tumbled in in Nature, but I perceive now that they stand much as other buildings do. You represent truth; you represent it thoroughly and successfully.

Well, so successful have you been in your efforts that many for some time past have thought that, in consequence of your success and of the development of photography, painting would become an art of the past. I am glad you agree with me, because I do not think it will. Shakespeare says, "There's a divinity that shapes our ends, rough-hew them how we will." The providence that shapes your ends, gentlemen, is the little lens of the camera. That is a mechanical device. I am perfectly well aware that no two lenses ever agree—that every lens has a peculiarity of its own. In another branch in which I am much interested, for example,

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in ships, we, in the company to which I have the honor to belong, order, say, three ships to be built exactly the same. They are built mechanically and exactly alike, but by some extraordinary means that nobody understands, each one of those three ships has its own individuality. I believe that two lenses made and manufactured by the same maker, and what might be called mathematically and mechanically perfect, will still have an individuality of their own. That is something, but let me tell you that that individuality is not enough. In the beginning every artist was greatly struck by photography; we marvelled at the beauty of the reproductions that you made from Nature, at the detail that you could reproduce, and at the perfection of the whole; and there was a time, I think, when art was so much influenced by photography that there was some danger of its becoming too precise, too mechanical, and too thorough in its execution. But, happily, the pendulum has swung round, and at present we are rather inclined to be the reverse, and to go in for what is called "impressionism." But, however much we may worship truth, there is an undoubted truth in art, and that is, that the more individuality there is in the artist's work, the more of himself there is in his work, the better and more skillful will be the picture. There is an old classical legend of a gentleman of the name of Marsyas, who invented the pipe, and who, having by some extraordinary means learned to play on it with great skill, challenged the god Apollo to a contest in music. One piped and the other played on the lute, and the immortals who were present—not the forty Academicians—agreed that the honors were even; but then Apollo, still playing on, began to sing, and the verdict went entirely in his favor. And so it is in art, gentlemen. To a certain extent there is mechanism in art, but there is the human element also, and it predominates and must predominate as Apollo's voice triumphed over the mechanism of the simple lute, and it is that that makes excellency in art. I know that many of you, by some means which I am not skillful enough to explain, but which you probably know better than I do, have managed to instill into photography a certain amount of individuality, so that you can recognize the work of So-and-So or So-and-So perfectly and without doubt. But still there is the fact that you are the slaves of your lenses. The lens is the eye through which you see Nature. Well, gentlemen, we consider that Nature should be seen with two eyes, and not with one. It is what we see with our two eyes that we try to represent, that is, the impression that Nature produces on the ordinary brain when seen through two eyes. What does that give you? It gives a you a certain roundness, a roundness which there is in everything we look at.

Another thing is this: I have seen frequently—not too often—subjects done by photographic artists. A "subject" is no doubt a very ambitious effort for a photographer to undertake. He arranges everything with the greatest care—gets his models to pose, and everything of that kind, and then he photographs them, and the result is what is supposed to be a picture. Well, gentlemen, I am sorry to say that that is not our view of art. An artist is a man who should never tell an untruth; I do not mean in real life, but in his art. Everything that he puts into his picture should be absolutely true. But he has the power of leaving out as much as he likes for his purpose. When a great writer writes upon any subject and describes a scene, he dwells on certain points and lets others be indicated by a simple word. That is what you do not do in photography. I know you have means by which, when you have got your focus, you turn it off a little bit and make it more or less vague, so as to give a pleasant result. Well, that is all very well; that is just the same as if I half shut my eyes and look at a thing, but it does not give you the mind of the artist. The great difference between painting and other arts is this, that in painting there is, above all others, first, I should say, the conception of the artist of the thing that he would represent, and after that there is the doing of the thing with his own hand. Now, a musician may compose, as many have done, immortal works. Take Beethoven, for example, with all his sonatas and splendid things. All those splendid things were composed by Beethoven, and they are put in a volume and people play them—more or less well; if they are played well we admire them; but, if they are not played well, they become intolerable. But an artist—a painter—plays and sings his own sonatas, and will play them and sing them as long as the works exist. You have there the actual handiwork of the man ; you see how he interprets each thing that he did. It is that which forms the beauty of painting ; it is that fact that removes it from any mechanical process that I know of ; and it is that fact, I hope, which in time will prove a good picture and distinguish it from a bad one.

But I do not know how to acquire this. It is for you, with your infinite ability and experience, and knowledge and aptitude, to try whether you can do this. I wonder if you will ever be able to master the lens? I wonder if you will ever be able to make it your slave, instead of your master? At present it is your master. Well, there may be many things that are not discovered yet. We have seen, I believe, color reproduced in a photograph ; at least I am told so. I have never seen it. I read a description of it the other day, and it seemed to me that the color was not reproduced in the photograph at all, but arose from reflected lights from the photograph. I hope some day you will be able to produce photographs in color. They will be invaluable to us. They will give us the actual, undeviating and uncompromised truth. That is a thing that every artist must admire. He can take from it as much as he wants, he can leave out what he does not want, and with the help of those photographs the artist need never go quite astray. Photography has done away with all the stupid conventionality which existed for so many years in the English school, and has rendered it sane, hardy and healthy. I hope you will continue to develop. When I say develop, I mean to do your best to produce works of truth, and at the same time try to get some of that beautiful atmosphere, some of that grace that there is in Nature, and which most photographs, I think, seem to lack. Occasionally, perhaps, by chance you do hit upon the thing, but I think some of you do not know how you have done it, and some of you do not like it when it is done. It seems to me you might call in some kindred art or power to help you in your difficulties. Have any of you tried what electricity might do? I am as ignorant as can be about the thing, but it seems to me that electricity has sharpened the ears of the telephone—it has sharpened sound and rendered it more acute, and I do not see why it should not produce some startling effects if you brought it to the aid of the camera. I do not know whether photography is a science or not, but we will take the scientific view of it. It always seems to be that in science men go round in a kind of circle, they discover all kinds of things, but they do not apply them. Now, Edison, who is a great man, was talking to my father-in-law on the subject of electricity, and my father-in-law spoke of him as a scientific man, and Edison said, " Don't call me a scientific man, I can get as much science as I want for $10 a week." Gentlemen, keep your eye upon science ; watch what these exceedingly clever men do with infinite pains and labor, and then see what use you can make of it for yourselves. Begin afresh. Who invented the electric telegraph—Faraday? All sorts of people were sending sparks along a wire, but it took an artist to find out that it was useful for sending messages ; it never struck the scientific men. It was Morse, who was a painter. who found it out. Do not let science master you. You try and master science. Get the better of your photographic lens, and then, no doubt, you may do something so well that we shall almost call it a picture.

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THE advantages of specialistic photography over that class which includes the taking of all things visible on, above and below the surface of the earth, is daily becoming more manifest, thanks to the works of a few enthusiastic men and women, both in and out of the professional circle, who seem to realize that better justice can be done to the subject under treatment if the field of study is limited than will be possible if the attention is spread over a boundless territory. Studies of flower and plant life, birds and insects, cloud forms and combinations, trees and foliage, together with a vast number of other subjects, offer a field for the specialist most tempting, and in one or another of which more pleasure and profit will be found than in promiscuous exposures on miscellaneous subjects.

JOTTINGS FROM GERMANY.

Reproduction of Faded Albumen and Celloidin Pictures.—To make a negative for reproduction from a badly faded picture, the yellow tone of the same may be removed in the following way. Prepare a solution composed of :

Concentrated solution of bichloride of mercury in muriatic acid	8 cubic centimeters	= 2 drams 15 minims.
Water	1,000 ‘‘ ‘‘	= 34 fluid ounces.

If the print changes to a purple-violet tone in this solution, it is put into the following bath :

Chloride of gold and potassium	1 gram	= $15\frac{3}{5}$ grains.
Water	1,000 cubic centimeters	= 34 fluid ounces.

Another method is as follows :

Bromide of potassium	3 grams	= $46\frac{1}{5}$ grains.
Sulphate of copper	6 ‘‘	= 1 dram $32\frac{3}{5}$ grains.
Water	100 cubic centimeters	= 3 oz. 4 drs. 10 mins.

After the picture has bleached out completely in this bath, wash and dry. After drying, it is exposed for a short time, and developed with oxalate of iron or amidol. After development wash, fix and dry. The iron developer may be acidified to advantage with a little tartaric or citric acid. In this way very badly faded pictures, even if almost entirely gone, may be restored and made useful for reproduction.

Changing of Bromide of Silver Prints to Pen Drawings.—The bromide of silver print is drawn over with a lithographic pen and India ink. After the drawing has become thoroughly dry, it is put into a bichloride of mercury solution, in which it will bleach out in about three minutes ; but the India ink drawing remains. The following bichloride of mercury solution is used :

Bichloride of mercury	10 grams	= 2 drams $34\frac{3}{5}$ grains.
Alcohol	100 cubic centimeters	= 3 ozs. 4 drs. 10 mins.
Water	100 ‘‘ ‘‘	= 3 ‘‘ 4 ‘‘ 10 ‘‘

After bleaching, the print is washed, transferred to stone or zinc, and etched.

To Remove Fixing Soda from the Negative.—Put into a beaker glass a concentrated solution of carbonate of soda and some iodine crystals. Iodide of soda will form, which dissolves an excess of iodine. Of this concentrated solution mix 2 parts with 100 parts of water, immerse the rinsed negative in this solution, and let the latter act for about two minutes. The negative is now washed and will be completely free from hypo.

Poisoning with Bichromate of Potassium.—Bichromate of potassium has on many people an extremely poisonous effect. If they only come in contact with it, the result will often be to produce inflammation of the skin and eruptions, which will remain visible for years. Its effect is particularly felt in hot solutions, so that, for instance, many persons will easily stand the sensitizing of carbon paper, while developing in the warm, although extremely diluted solution will at once produce the well-known appearance. Chromate poisoning is a very tedious and disagreeable sickness. As a preventive it is recommended to wash the hands every day thoroughly with alcohol, to which have been added a few drops of carbolic acid to each 100 cubic centimeters, and a teaspoonful of glycerine. Another good prescription is a concentrated solution of boric acid in water, which is applied warm, and in which the hands are bathed daily two or three times for about one-quarter of an hour. Powdered salicylic acid is also said to be very good.

Translated by

HENRY DIETRICH.

A DISCLAIMER AND AN INDORSEMENT.

[*Reprinted from Wilson's Photographic Magazine.*]

IT has come to our notice that the article on "Platinum Toning Agents," contributed by Mr. D. Bachrach, to the February number of this magazine, has been reprinted as a circular with the imprint "from *Wilson's Photographic Magazine*," and is being widely distributed among photographers to further the sale of a certain brand of platinum toning solution mentioned in the article.

From information received, it appears that the imprint of the magazine referred to as part of the circular has given the impression that we editorially indorse the contents of the circular and the specialty it is used to advertise. This is not so. A technical magazine cannot undertake to be responsible for the opinions expressed by contributors in its pages. In fact, it is this freedom of expression which constitutes the chief value of a technical journal. We, therefore, protest against the unauthorized imprint of the MAGAZINE attached to the circular in question, and warn our readers that we do not indorse the platinum toning solution prominently mentioned therein.

The editorial indorsement of this magazine is given to photographic specialties of merit only after careful trial and personal experience. As far as platinum toning is concerned, we may say that, when using Aristo-Platino paper, we invariably use the platinum toning solutions prepared by the American Aristotype Company expressly for their papers. Apart from the common-sense assumption that this platinum solution is the best for the special purpose for which it is made, viz., the toning of Aristo-Platino, our experience, as well as that of many practical workers, proves that it gives the best results.

For securing platinum tones on Aristo-Platino paper, then, we indorse the American Aristotype Company's Aristo Platinum as meeting every requirement. It gives full, rich tones, pleasing depth in the shadows, and clear, brilliant whites in the highest lights. It does not bleach out the finer details of the intermediate tints, and prints toned with it do not "go off" in the fixing bath. It is economical if intelligently used, and, for Aristo-Platino paper, the best toning solution within our knowledge.

This is not written as an advertisement, but as a plain statement of facts as we have found them. It would, perhaps, never have been written, except for the unwarranted use of the magazine imprint to "boost" an article of which we have no practical knowledge.

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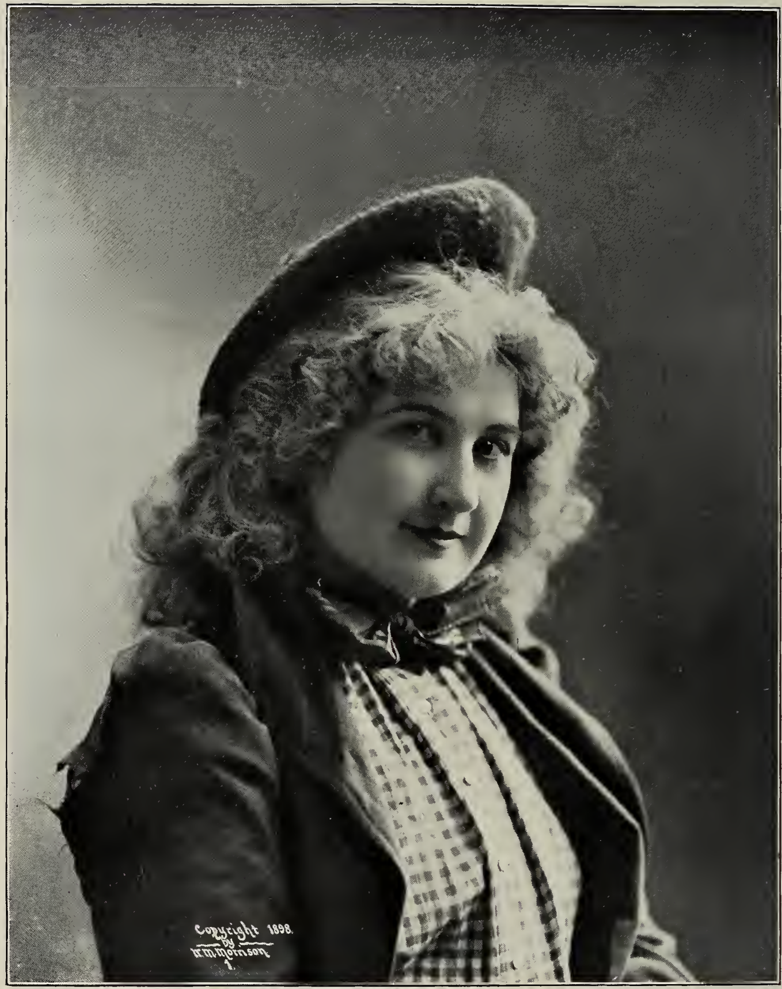

Photograph by W. M. MORRISON.

STUDY IN LIGHTING.

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PHOTOGRAPH BY F. L. FIEGER.

A DUSTY ROAD.

"WIDE ANGLE" LENSES.

THE following interesting article by W. de W. A. in a recent number of *Photography* may be the means of enlightenment to readers on this side of the water, for the difficulties that called it out are not by any means seldom to be seen in the work of the photographer who has had practice and experience enough to enable him to avoid them. We quote the article in its entirety :

"The photographer has to choose from and work with the lenses that the optician places at his disposal, and sometimes he has to make his choice by the light of Nature, and then it may happen that he is not satisfied with the inspiration that made him take some particular lens. Such is the case with a friend of the writer's, who has placed before him the results of a photograph of an interior taken with a well-known wide-angle lens, which embraces a field of view of about 80 degrees, or, perhaps, rather more. The photograph is certainly an abomination to look at, and it appears in false perspective, although, mathematically, it must be correct. The picture is one of a dining-room, on the walls of which ancestral pictures have been hung. The writer knows the portraits—some are cavaliers of the Stuart time, with the usual ruffles and swords. Slender men they appear in the originals, but in the photographs some have got a very 'middle-age' spread. Their shoulders are of unnatural breadth, and their faces are expanded laterally to such a degree that the owners are made to appear of an apoplectic tendency, whilst the houses are apparently considerably broader than high, though the reverse is the fact in the originals. One old picture by Sir Thomas Lawrence is of a spare cleric of some description, but in the photograph he appears as Friar Tuck is usually portrayed—burly, and a good liver. When we first saw the photograph we thought that some practical joke had been perpetrated. The film, for instance, of the plate we thought might have been stretched laterally, but, on seeing the negative, we found that distortion was not caused by any such artifice, but was due to the fact that the wide-angle lens had been used. The picture was 7½ x 5 in dimensions, and was taken with a lens of about 5 inches focal length. The closer the print was viewed, the less objectionable it became, but there is a limit at which the eye can adjust its accommodation, and it was impossible to view the picture at the distance of 5 inches. To see whether it would appear natural if looked at from the focal distance of the lens, resort was had to the artifice of enlarging it to three times linear, practically speaking, making the focal length of the lens 15 inches. The print when viewed from a distance appeared as before, distorted and untrue, but as the eye gradually neared 15 inches the distortion began to disappear, but, again, another difficulty was felt—the retina refused to receive the image on its margins with any degree of sharpness ; but, allowing for this, the impression given by the pictures on the wall appeared correct (for it was only those at the margins that had the serious distortion indicated) when the eye was fixed on to a fairly constant point near the center of the print, but directly the eye was turned, as it naturally turns to view a photograph, the distortion again became apparent. Some years ago we recollect noticing that the pictures obtained on a cylindrical surface, and then stretched out flat, taken with the instrument we described in a recent article, did not show this visual distortion. An easy explanation is offered when it is recollected that the perspective, as in this case, is cylindrical, and not the ordinary perspective, having only one point of sight. Here, when the eye travels across the print, at each point the perspective is truer than it would have been if taken on a flat surface with the lens fixed in one position. Such a photograph, when enlarged and fixed in a cylindrical shape, would, when the eye was placed at the center of such surface, appear in proper perspective whatever motion was given to the eye. If we come to consider the matter in detail, we shall find that any print taken from a negative which was produced by a lens of short focal length, and not necessarily including a large angle, must appear distorted to a certain extent, for it has to be viewed at a distance which is considerably greater, in most cases, than such focal length. The tendency will be to produce the impression that objects at the margins are really broader than they ought to be. This is true even when the angle included is only 40 degrees, but if we enlarge such a negative to a size which will practically make the focal length of the lens over 12 inches, and view the print at that distance, the perspective will appear correct, if the eye be kept fixed. If we calculate out the apparent distortion of a photograph which only includes some 30 degrees we shall find that it is negligible, and does not differ very seriously from cylindrical perspective, and it will make very little difference whether it is viewed at a distance of 12 or 36 inches, and whether the axis of the eye is fixed on the center or moves along the picture. With an eye which had as good a defining power at the margin of the retina as at the center, the use of a wide-angle lens would be perfectly reasonable, so long as its accommodation sufficed to bring the whole picture in focus, but, as this has never been the case, we must look with suspicion on the pictorial effect which such a lens will produce, and regard a photograph taken with it merely as a chart from which measurements might be made. Now that photographs can be taken on films which are capable of being bent to any shape, it becomes an interesting problem as to whether a negative can be produced from a positive which shall do away with visible distortion. In other words, to reproduce a negative which shall be apparently taken with a lens including only an angle of, say, 30 degrees, and yet to take in all that is desired. This would be equivalent to placing the camera at double the distance from the object than that at which it was placed to take the original view. In interiors, for instance, this might be of great value, but how far feasible such a procedure may be is somewhat problematical. A view in cylindrical perspective might be produced by some such plan, but that would not be wholly satisfactory. A good deal at one time or another has been written about wide-angle lenses, and statements have been made that pictures produced with them are mathematically inaccurate. Such is not the case, however. Mathematically, a wide-angle rectilinear lens gives a perfect representation in proper perspective, and if we cut off the margins of the print till only some 30 degrees of angle of the center are left, it is visually accurate. It is only when we go beyond this limit that the impressions given are incorrect. Our advice to photographers is to limit their choice of lenses for pictorial purposes to those which cover not much more than 40 degrees, and to avoid a lens taking in more than this except under very exceptional circumstances. This remark applies to hand cameras as well as to others. For a quarter-plate hand camera, this makes the shortest focal length advisable to be not less than about 6 inches. A lens of 5 inches focus would include about 45 degrees, and, as some of the quarter plate is covered by the rebate, a lens of 5½ inches focal length may be considered as within the limit. It will be seen that not only ordinary optics, but physiological optics are mixed up with the question of the admissible focal lengths of lenses. To the former attention has usually only been paid, while the latter has been disregarded to a very large extent."

HOME PORTRAITURE.*

By "L'homme qui rit."

MOST amateur photographers have at some time or other experienced the disappointment of an unsuccessful attempt to take a faithful portrait in the open air. The operator having little control over the lighting of his subject, it is almost impossible to obtain the chiaroscuro essential to a faithful portrait, consequently a flat uninteresting picture is usually the result, alike disappointing to the operator and sitter. Of course, some improvement may be secured by an arrangement of screens and curtains, but these are generally too troublesome for the ordinary amateur.

We have not all at our disposal a studio with its equipment for obtaining those beautiful and faithful portraits which enhance the reputation of the first-class photographer. Yet, portraits taken in an ordinary room will, in many cases, compare favorably with those taken under more favorable auspices. In some things, indeed,

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home work has even the advantage over the studio, *i. e.*, the sitter usually assumes a more natural pose, because the surroundings are more congenial, consequently a natural expression, one of the most important considerations in portraiture, is more easily obtained, and success secured. In our first attempts at home portraiture many difficulties may be expected, which are absent in open-air work. The first of these will be the strong contrast between the lights and shadows, the former too bright and the latter too deep, and which produce those works of art commonly termed "soot and whitewash" photographs. It is therefore necessary that these harsh lights be corrected, and this may be done without much trouble or expense. We must aim at having the half-tones correctly rendered, *e. g.*, the lights having a gradual blending, from the highest to the shadows. To secure this effect, the sitter must be placed, not parallel with the window, but at an angle of about 45 degrees, and about 3 to 6 feet distant, as the judgment of the operator may determine.

Under these conditions the contrast may still be too great, but a screen of white muslin stretched on a frame, and interposed between the sitter and the window, will make matters right, or tissue or newspapers pinned over the window will answer the same purpose. We ought now to obtain a portrait with the high lights accentuated and the half-tones merging into shadow. The shaded side may still be too dark, but this can be easily remedied by a reflector, not coming directly from the side, but a little in front.

Wonderful effects can be obtained by a judicious use of this reflector, but care must be used lest, by bringing it too near the sitter, cross lighting in the eyes may result, which is anything but a pleasing effect. A swinging mirror covered with some white material makes a capital reflector. It can be inclined at any angle to throw the light on the required place, and the covering takes away the glaring effect often noticed when a naked mirror is used.

It has often been argued that the light should not come from two sources, but this I do not quite agree with. A window not opposite, but a little in front, and lower than the light which illuminates the sitter, with a blind at sufficient distance not to cause cross lighting, will furnish a nice diffused light with sufficient shadow. As regards the best kind of window for the purpose, I prefer the form known as "bay," for with it, and properly adjusted blinds, another power is placed in the hands of the operator. A north light is also preferable, as it is steadier, and one is seldom troubled with a direct sunlight.

Backgrounds are necessary, and for bust pictures there is nothing better, in my opinion, than a graduated cloud effect, which, if carefully handled, will give a wonderful relief and tone to the subject. These can be had in paper or canvas very cheap, and I consider it a profitable investment for any one who is interested in the quality of their work.

Of course, the ordinary surroundings of the room may be successfully utilized for backgrounds, but care must be exercised that nothing detracts the eye from the principal object, viz., the face of the sitter.

All the care and trouble taken in the posing and arranging of your subject will, however, be in vain if you have faulty exposure or careless development, for the want of care in either of these operations may result in the losing of your delicate tones and sparkling lights. Exposures will be a little longer than for open-air work, but by using a rapid plate it can be reduced to a minimum; in fact, in some well-lighted rooms I have been able to use a "Cadett lightning," with lens working at *f*/8, and secured a full-exposed plate in one and one-half seconds. A few trials, however, will soon give the correct exposure. Softness being your aim, you must expose full and keep your negatives thin. A better result may be obtained by using a portrait lens, but if this is not available, expose with full aperture.

Now a word in conclusion. I am convinced that too little care is taken with the pose of the sitter. This requires experience. However, always strive to have your subject as natural as possible. Avoid stiffness or conventionality, and you will be surprised at your success. By following the directions I have here laid down you will be able to add materially to your own reputation and afford pleasure to your friends.

Negatives require a little retouching. If the amateur cannot do this he had better allow some one versed in the art to do it for him. The subject of retouching and the treatment of the negative is so exhaustive that I must defer it till another time.

A FEW CHEMISTRY TIPS FOR THE PHOTOGRAPHER.*

By A. A. M.

IT is amazing to see what a large number of amateurs manage to struggle on with absolutely no knowledge of chemistry or the theory of photography, although I hope a good many have mastered the principles of the latter by means of the excellent articles which appeared a short time ago in *The Amateur Photographer* from the pen of W. Ethelbert Henry, C. E. I am sure amateurs would find things work more smoothly, and their results would be much more certain, if they would only learn a little of the mysteries of chemistry. There are several little stumbling blocks which chemistry puts in the path of the unwary photographer, and it is the object of this article to point out some of these.

First, let us look at the theory of "crystallization." Suppose we have a solution of a chemical, and wish to get that salt back again into its solid state, how should we go to work? If we are in a hurry, we should gently heat the solution over a spirit lamp or gas burner, and so drive off the water and leave the salt behind; but, if time is of no consequence, then stand the dish of solution in a draught of warm, dry air for a day or two, and you will find the water will evaporate off and leave the salt behind, but in larger crystals than in the first case. Now, take some of these crystals and thoroughly dry them on blotting paper, and then transfer them to an evaporating dish, or, failing that, an old saucer, and gently heat them. They will crackle and melt, water will be driven off, and the salt will remain as a powder. Now, where did this water come from? It was actually combined in the crystal, and was, in this particular instance, necessary to enable the salt to assume a crystalline form. Without that water, as we have seen, the salt remains as a powder.

Now, let us see how this little secret of Mother Nature affects the unwary photographer. He is told to make up a solution of copper sulphate. The formula says: Copper sulphate, 1 ounce; water, to make 2 ounces. He utterly ignores the words "to make," and at once gets an ounce of copper sulphate, measures out 2 ounces of water, and dissolves the sulphate in it. Now let him measure the volume of his solution, and he will be astonished to find that it is several drams over the 2 ounces; but where the extra water came from he is quite at a loss to say. He is fairly in a muddle now, for his solution is weaker than it ought to be, and consequently his results will be very uncertain. Now, all this trouble is caused by the "water of crystallization." He was not aware that when he dropped the ounce of sulphate into the water he was also adding more water. Those two words, "to make," are put in to allow for that. The correct way to have made up the solution would have been to put 1 ounce of sulphate into a 2-ounce measure, add about an ounce of water, and then, after the salt has all dissolved, make the volume of the solution up to 2 ounces.

Another little bit of chemistry which every photographer should know is the great affinity which sulphuric acid has for water. Many an accident has occurred in chemical laboratories through students forgetting this. The unwary photographer sees a formula in which, amongst other things, are sulphuric acid and water. Quite naturally he starts by mixing the liquids first, and, measuring out the water, he adds the requisite amount of acid. The next thing that happens is, that hardly has the acid touched the water before a snap is heard, and there is a clean crack right round the vessel just at the surface of the water. Why is this? It is simply because when sulphuric acid is mixed with water, some kind of action is started which produces great heat, the result being that the glass is cracked. When mixing the acid with water, it should be added drop by drop, and carefully stirred.

There are certain chemicals—for instance, ferrous sulphate, pyrogallic acid and sulphite of soda—which have a great tendency, when exposed to the air, to change into something else, and therefore, when both in the solid form or in solution, they should be kept from the air as much as possible, either by sealing the bottle down, or, if in solution, the surface of the liquid can be covered with a layer of castor or some other oil.

Suppose a chemist has a bottle of solution in his right hand, and in the other a bottle or measuring glass, which he wants to hold up against the light while filling.

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* *The Amateur Photographer.*

How does he remove the stopper and hold it while pouring out the solution? The beginner would naturally take out the stopper and lay it on the bench, but the chemist knows that it is there liable to pick up all manner of contaminating things, and he prefers to keep it in his hand. He stands the bottle on the bench, and, turning the back of his hand towards the stopper, grips it between the first and second fingers. Now, after taking out the stopper, he can turn his hand the right way round and lift the bottle in the ordinary way, while the stopper will be sticking out from the back of his hand.

It is often very aggravating to have to wait, say, half an hour, while a solution is filtering, for often in the old style of folding the papers it took quite half an hour to filter a fair quantity. The object which should be sought is to get as large a surface of paper exposed as possible, and, therefore, I believe you will find it better to follow out this method of folding your paper. Take a filter paper, or a clean circular piece of white blotting paper, and fold it in halves. Then fold again and again, always letting the fold go through the center of the original circle, and continue this till you have a segment-shaped piece about a quarter of an inch across. Now open this out, and, putting it into the funnel, negotiate it so that there are a number of "pleats" (in dressmaking parlance) all round. This, you will find, will filter a solution a good deal faster than a paper folded into the old-fashioned quarters.

Finally, every chemist knows what a hash a slovenly worker will make of anything he undertakes in that science, and this also applies to photography. Therefore, let me urge upon all amateurs to be as neat as possible, and not to leave apparatus lying about dirty any longer than is absolutely necessary.

STUDIES OF PYRO.

By Raph. Ed. Liesegang.

OF all developing substances practically applied up to the present time, pyro has shown a certain superiority. While all other developers (with the exception of the weaker working pyrocatechin) give pure silver pictures, with pyro a yellow picture can also be produced in the film (alongside of the silver picture) which is capable of acting with just as much strength as the black silver picture.

I succeeded, some time ago, in proving that this second picture is produced from an oxidation product of the pyro.

Those parts of the gelatine film on which the yellow body is are tanned, the gelatine swelling less there than in other parts. Thus a relief will originate, which, in many cases, can be used as a substitute for the bichromate of gelatine relief hitherto employed. It can also be applied for lichtdruck.

But of what does the oxidation product of the pyro consist? This question has lately become of interest and importance, not alone for photography. In dermatology (diseases of the skin) only the ordinary pyro has been applied. Unna proved two years ago that the oxidized pyro was a much better remedy.

Berthelot has studied the reactions which take place between pyro and oxygen in presence of alkalies. The process varied according to whether potash, soda, baryta or ammonia were used as superfluous alkalies. Before complete oxidation is reached, different secondary products will form in succession, emanating all from the first compound $C_6 H_6 KO_6$. The first products of oxidation approach that of purpurogallin, obtained from pyro under different conditions. With ether extracted, they are red, crystallized, and assume a temporary blue color when exposed to the atmosphere or on coming in contact with alkalies.

Berthelot has not yet finished his researches about the oxidation of the alkalic pyro by exposed bromide of silver and the influence of the sulphites, but a complete report may be published in a few months

Translated by Henry Dietrich.

COMMENTS ON CLOUD-CATCHING.*

By Percy Barron.

To become a really successful cloud-catcher, a man must have the patience of Job and the philosophy of Diogenes; patience to wait, for hours may be, for a particular effect; philosophy to accept his fate with serene imperturbability when the very finest effects appear immediately after he has exposed his last plate.

To obtain his cloud pictures, he may have to stand upon bleak high ground when the wind is blowing half a gale, or in showery weather, he may have to wait about in wet clothes for hours; but, if he has that highly desirable quality usually called "grit," no amount of physical discomfort will quench his enthusiasm for his work.

From a technical point of view there is but little to learn about cloud photography; it is in the selection of subjects that the greatest amount of skill is required.

Brilliant and striking effects appear to exercise an irresistible fascination over inexperienced workers. They seem to positively worship a sunset, and to be quite unable to see any beauty whatever in the sky at any other time.

The stock of negatives that an individual of this class accumulates is of but little value for combination printing; that is, unless he wishes to devote his attention exclusively to sunset pictures.

For one, however, whose work includes a fairly wide range of subject, the chief aim in making a collection of cloud negatives should be variety, so that he may at any time be able to select from his stock a negative from which he can print suitable clouds into any particular landscape.

To produce such a collection, it is, of course, necessary that the sky be studied under all conditions, and at all times of day. Unfortunately, there still exists a popular idea that the best time for the work is towards evening—at least this is the impression that the writer has received from conversation with a number of workers from time to time. Now to say that there is a "best" time at all is just as unreasonable as it would be to say that there is a certain portion of the day that is most favorable for all classes of landscape work. Certainly, the more brilliant effects are to be obtained when the sun is low down on the horizon, but as mentioned before, the photographer should not confine his attention to these. It may be said that brilliant effects are more easily rendered by photography than cloud forms of a more delicate type, but since the introduction of isochromatic plates, the difficulty of photographing the latter has vanished, and it is now no great feat to successfully photograph the "Mackerel Sky" (cirro-cumulus) which, owing to its delicacy, is perhaps the least easily depicted of all.

A very beautiful form of cloud is the Cirrus. The reader will know its light feathery appearance. The slight filaments are sometimes seen arranged in parallel lines; sometimes curved as if from a common center This form of cloud is never seen near the horizon, but always high up in the sky. A remembrance of this fact may prevent the worker from printing them low down, and thus producing an effect utterly false to Nature.

The billowy cumulus clouds with their snowy white crests, are undoubtedly very beautiful, and they are easily photographed, but it is rarely that they lend themselves to pictorial landscape work, unless they are made the principal part of of the composition. In this way there is possibly room for some original work, but if these clouds are printed into a landscape which itself contains what is intended to be the principal point of interest, the boldness of their outlines is apt to attract more attention than is desirable. This is probably recognized, for this is the form of cloud most rarely seen in the pictorial work of to-day.

Even the most casual observer of the sky must know the Rain Cloud (Nimbus), or must, at any rate, be sufficiently acquainted with it to know that when it appears it is time to look out for shelter. This being so, it should not be a very difficult matter to produce by photography a picture which should convey to the observer the impression of impending rain, in fact, a study of the sky must of necessity greatly aid the pictorial worker in giving expression to his ideas.

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* *The Practical Photographer.*

The writer once heard a gentleman who has gained some renown in photographic circles by his hand-camera work say that, when he was out on a picture-hunting expedition and found himself towards the end of the day with a few plates to spare, he always fired them off at the sky.

This is certainly not the way to make a useful collection of cloud negatives. It is leaving too much to chance. An earnest worker will give the same amount of study to his cloudscapes as he bestows upon his landscape subjects.

The hand camera is often recommended for this work, upon the ground that with this instrument it is possible to obtain fleeting effects that would have vanished ere a stand camera could be erected and made for the exposure of a plate.

At first, this sounds reasonable enough, but a little examination will show that the balance of favor goes to the tripod instrument. The serious worker never depends upon chance for his effects ; experience enables him to judge with considerable accuracy when he is likely to obtain what he wants, and so he is able to take up a good position and wait. He is thus never taken at a disadvantage. The hand-camerist is limited to comparatively small plates ; the stand-camera man is not. The latter has also greater liberty in exposure—which is quite as important in cloud photography as in any other work.

It is, of course, absolutely necessary that a position be chosen from which an unobstructed view of the horizon may be obtained. A single tree or other object projecting above the sky line, and showing about $\frac{1}{2}$ or $\frac{3}{4}$ of an inch above in the negative—supposing it not to be larger than whole plate—may completely destroy the utility of the plate for combination printing ; for, it is imperative that the horizon line of the cloud negative shall, as closely as possible, correspond with the horizon of the landscape with which it is to be combined. This is obviously impossible if in the former negative any object projects above the line where the ground appears to meet the sky.

As a rule, either high ground, the bank of a wide river or lake, or, best of all, the seashore, should be selected as the position from which to make the exposures. A place from which only a limited view of the horizon can be obtained is of no use at all, as it is often necessary to swing the camera round quickly to catch a good group of clouds. It may be mentioned here that a good finder is of great value for the work. The best form consists simply of a wire frame attached to the front of the camera, and a sighting point fixed to the back. It may sometimes, however, be found an advantage to replace the wire frame by a piece of deep blue glass.

As before indicated, the writer does not believe in haphazard work. When a chance of obtaining a good cloud negative occurs when the worker is out on a ramble with a camera, it would, of course, be foolish not to accept it, but still, the best work will be produced by taking up a suitable position when good effects are likely to be obtained and quietly waiting.

It is as well before starting out to provide a good supply of tobacco, as the weed is a great soother when things go wrong, as they will sometimes, and a pipe enables the worker to suppress his impatience.

And now a few words upon matters purely technical. Isochromatic plates (slow), especially when used with a yellow screen, are of immense value. Of value, not only by reason of their correct color-rendering properties, but also on account of the latitude that they allow in exposure. It is by no means impossible to successfully photograph white clouds on a blue sky with ordinary plates, but to do so the exposure must be hit off to a nicety. The slightest suspicion of over-exposure means absolute failure. On the contrary, with isochromatic plates it is possible to considerably over-expose, and yet, by careful development, obtain sufficiently brilliant negatives.

The best developer is the one with which the worker is best acquainted. In the first place because, knowing its peculiarities, he will have perfect control over his work, and secondly, because cloud negatives should be of the same color as the landscape negatives in conjunction with which they are to be used. If they are not of the same color, it will be found almost impossible, if a printing-out process is employed, to obtain prints in which the clouds are of the same tone as the landscape.

It is a great mistake, at least in the opinion of the writer, to produce very thin cloud negatives. They should be of such density as to take almost as long to print as an average landscape. The difficulty of obtaining an even tone all over the print will then be completely overcome. It is also easier, if the negatives are fairly dense, to softly vignette the clouds into the landscapes by any of the well-known methods.

THE ARRANGEMENT OF FLOWERS.

THE following paper, read before the Handworth Photographic Society of England, by Mr. Charles Morgan, is full of good suggestions along a comparatively new line, and we reprint it from *The Amateur Photographer*, only omitting references to plates.—EDS.

"The composition and arrangement of flowers, either as pictures, the decoration of a room or table, for personal adornment or any other purpose, is a very fascinating occupation, especially to ladies. Gentlemen, I believe, as a rule, do not trouble themselves much about it so long as it is confined to personal adornment or the decoration of a room, but when it comes to making a picture or photograph, they also develop an interest in it.

"I do not mean to say that gentlemen do not admire beautiful arrangements of flowers when they see them, but they leave the arrangement of them to the ladies of their household, and are content to admire without question the work which their deft hands have done so well.

"Flowers have become a necessity of our lives; what table is complete without them? How sad and desolate a drawing-room, or any room, would look without flowers! They seem to bring the sunshine, the song of birds, and all that is beautiful in Nature into our homes; everyone feels this, even those who do not think much about it. When we gather flowers from the field, the garden, or the greenhouse, and bring them into our houses, they need arrangement.

"Outside, Nature arranges them, and usually does it much better than we can, but indoors we must do it for ourselves, and it is a very pleasant occupation, and one that I think every woman delights in; if she does not paint or photograph, she can put her artistic feeling into this art and make pictures of the flowers instead of from them.

"But it is much easier to make pictures of flowers than from them; we can look all round our bunch of blossoms, see its beauties from every side, and its colors and perfume will atone for any slight defect in composition, but when we attempt to reproduce these arrangements on a flat surface, without color, we find it a much more difficult task, and this is the subject to which we are to devote our attention to-night.

"The subject naturally divides into two sections—outdoor work and indoor work, or growing flowers and cut flowers.

"GROWING FLOWERS.

"It is often very difficult to photograph growing flowers, owing to their surroundings; there are generally too many other plants about them, and the flowers themselves are often too much scattered, but by bending unsuitable boughs or sprays on one side, and drawing the flowers a little nearer to each other, and even sometimes cutting off a leaf or two, we can compose the group of flowers enough to make it picturesque, and the time thus spent is always well bestowed.

"It is well to choose isolated plants when possible, because a plant that has grown alone is always better developed, there is more variety in the shape of its leaves and flowers, and the stems are stronger and more beautiful in form.

"Take a poppy, for example, which has grown in a crowded situation. It has one miserable, spindly stalk, with a solitary flower on the top and no buds; whilst one which has had a good space to grow in has a magnificent stalk, thick and strong, with many blossoms and buds and plenty of well-developed leaves.

"The same may be said of the growth of all flowers, even such as wild roses, bramble, and convolvulus.

"If we attempt to photograph the top of a hedge on which any of these flowers grow, without very careful selection, the result will not, in all probability, be very pleasing, although the hedge from which we took the photograph may be very beautiful (mainly owing to its color).

"Color is one of the great stumbling blocks in flower photography; it carries us away and makes us think that things are worth photographing which we should not care for if they were presented to us in black and white only, which we must remember is all we have to reproduce them in.

"But if we carefully select one spray of wild rose, or bramble or honey-suckle, and get it well away from its companions, with a background that will not compete with it, but will throw into relief all its beauties, how lovely a thing we get!

"Good backgrounds are difficult to meet with in Nature, I confess but they are to be found, and it is better to wait until you can find or make one than to take an unsatisfactory photograph.

"The deep shadow under an overhanging hedge will often make a good background, or the hedge itself, if you can manage to get it all out of focus and so convert it into a gray mass. A distant hayfield also makes a very good background, and it is one very often found in conjunction with these flowers. Foxgloves, meadow-sweet, the purple loose-strife, iris, and those magnificent docks which are to be found growing by river sides, are all admirable subjects for photography, and should be treated in the same way as those I have before mentioned, namely, isolated plants selected, with simple backgrounds; the plant itself in such a situation being generally a perfect composition, the flowers forming the principal objects, and the leaves, buds, and stalks supplying the smaller quantities and varied shapes and tones which are necessary to support and harmonize the flower with its surroundings.

"The grasses that might be growing up among such plants would be almost certain to add to the beauty of the composition and should be carefully considered.

"Grasses are always very valuable for this purpose of composition because of the feathery lightness of their seeds and the beauty of their stalks, so also are very small flowers with a straggly habit of growth, although they are not often found associated with the plant which we desire to photograph, and are more useful when we are arranging flowers artificially; in fact, here they are indispensable, as I hope to show presently."

(*To be continued.*)

PROCESS NOTES.

Notes on Gelatine for Process Workers.

THE following notes are extracted from jottings taken at some lectures by the well-known expert, Mr. T. Bolas, F. C. S. These lectures were especially designed for photo-process workers, and were given under the ægis of the London County Council. It may be here premised that Mr. Bolas designedly laid aside technical details and dealt with underlying principles. For, as he very properly pointed out, to tell a man exactly how to proceed can only apply to a given set of conditions, and should these conditions change the information given becomes useless. But if a man learns the principles underlying his actions, then it is easy to modify his procedure to harmonize with a changed set of conditions. The first three lectures thus deal with general conditions.

Gelatine is a good starting point for the student of process working. It is chiefly made from skins or bones of animals. Skin is largely soluble in hot water, yielding crude gelatine. Bone consists of gelatinous matter and lime salts ; these latter can be removed by dilute acids. Experiment: Place a piece of bone in dilute hydrochloric acid (one to eight), for a week or so. The bone is now soft and flexible, and consists almost entirely of gelatine. Parchment and vellum are forms of skin from which the fatty matters have been removed by alkali. Parchment is one of the most enduring of substances. Examples fully two thousand years old are known. Gelatine can be made insoluble in water without the aid of light, but light hastens the process. The sesquioxides of iron, chromium and aluminum render gelatine insoluble. Experiment: A solution of acetate of aluminum is brushed on a piece of cotton fabric. The acetic acid evaporates, leaving an acid of aluminum. The fabric is now immersed in hot solution of alizarine—on removal it is apparently uniformly colored all over—but on boiling in soapy water the dye is removed, except where the aluminum solution was applied. Thus the aluminum oxide has fixed the dye—rendered it insoluble—and is known as a mordant. In the same way salts of iron or chromium may be used.

If to a solution of common alum (aluminum sulphate) we add liquid ammonia, we get the aluminum thrown down as hydroxide. But if we have a solution of alizarine in ammonia and add alum solution, we get alizarine and alum precipitated together, and forming a compound known as a "lake." In this form alizarine is eminently suitable as one of the pigments for three-color work. Turkey red fabric is from alizarine, with alum as a mordant, and is a fast color. Various vegetable matters, known as "astringent extracts," *e. g.*, tannin, act upon gelatine and cause it to contract. Hence a solution of Ceylon tea may be applied to a cut finger, causing the sides of the cut to draw together. Skin treated with tannin becomes leather. Oxide of chromium may be used for similar effects. Gum differs from gelatine in being non-nitrogenous. It is also precipitated from watery solution by alcohol, in form of white clots. But if these be removed and freed from the alcohol they are again soluble, so that the insolubility is only temporary or conditional. Gelatine is also precipitated from solution by magnesium sulphate (Glauber's salt). Reticulation of a film was shown to be due to surface tension. If gum solution be flowed on a glass plate and alcohol be locally added, the surface tension is altered and may be watched.

Gelatine derived from skin or bone is practically identical. On boiling bones we get a glue-like soup, *i. e.*, ordinary glue solution, so that glue is only crude (unrefined) gelatine. Thick glue solution is poured into rectangular moulds, allowed to set, cut in slices and dried on netting, hence the familiar appearance of cake glue or gelatine. Common gelatine is often hardened by addition of alum, hence, need of great care in selecting gelatine for photographic purposes. Purest form obtained by precipitating with alcohol. It always contains a trace of mineral matter. Gelatine, sometimes called glutin (not to be confused with gluten). Cartilage yields chondrine. Bone give ossein, which is also sometimes called collagen. Chondrine contains less nitrogen than ordinary gelatine, and more resembles albumen ; like albumen it is coagulated by lead acetate, but this is not so with gelatine. Commercial gelatine is often mixed, more or less, with chondrine. Meta gelatine is a form of gelatine which does not set on cooling. It may be prepared from ordinary gelatine, (1) by boiling for twenty-four hours, or (2) by digesting one-half hour at 140 degrees Cent., or (3) dissolving gelatine in half its weight of water, and adding from 5 to 10 per cent. of nitric acid—part being oxydized ; but the bulk unaffected. Gelatine, dissolved in acetic acid, does not set, but is an excellent and convenient form of liquid cement.

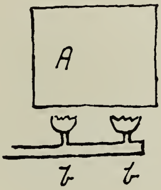
Tannin, added in excess, forms a precipitate of constant proportions, viz., 57.26 per cent. is tannin, and 42.74 per cent. is gelatine. Gelatine, heated in retort, yields ammonia and an evil smelling oil, once popular as a medical nostrum, and known as Dippel's oil. Gelatine is affected by oxydizing substances, *e. g.*, pot permanganate staining it and forming a lower oxide of the manganese, hence its action in the so-called intensification of a carbon transparency. A carbon print, twenty years old, of gelatine and manganese dioxide, was shown, and was evidently of a permanent character.

The bichromates are highly oxydized salts. If to a solution of potassium bichromate we add sulphuric acid, chromic acid is formed, and its presence shown by the red color of the solution. If now we add alcohol or other suitable reducing body, the alcohol is dehyrogenated and aldehyde is formed ($C_2H_6O + O = C_2H_4O + H_2O$), and the green sesquioxide of chromium (Cr_2O_3) is in solution. Similarly, a little powdered ammonium bichromate is spread on a film of gelatine and heated, when the same (Cr_2O_3) is formed. This salt of chromium is very stable, and is used as an enamel color.

To a solution of gelatine in hot water, alum is added until coagulation takes place. The coagulum may now be washed in hot water. Citric acid is now added, and gelatine is again dissolved, when set and cold the excess of citric acid may be washed out. Gelatine is perhaps more soluble in acetic acid than in anything else. Gelatine may be oxydized. Paper or parchment in contact with rusty iron becomes rust eaten, perforated, oxydized, burnt. Similarly, a rusty nail on a film of gelatine will presently make a hole in the gelatine. The iron oxide acts as an oxygen carrier. Yet an autotype print in gelatine, and iron oxide made in 1878 was shown, and was apparently perfect. Here the pores of the iron oxide were filled up by the gelatine, and it could no longer act as an oxygen carrier. The presence of a small quantity of moisture seems essential for various chemical changes. Copper does not burn in chlorine, or phosphorus combine with oxygen, unless some moisture be present. Probably this is also the case with chromated gelatine. Certainly it keeps soluble much longer if made as dry as possible. Carbon tissue generally contains about 4 or 5 per cent. of water. If further dried it usually becomes too brittle to use. If chemically dried by water absorbing substances, such as calcium chloride, it may be kept for months, but is too dry to work. It may be rendered workably by being left in a damp place for a short time. For drying carbon tissue by heat, it is better to use radial heat than heat conveyed by conductor or connection. Of drying boxes there are bad and good forms. The three sketched may be taken as more or less typical. In No. 1 we have a sectional view of a box of metal A; to the outside of the bottom of this box heat is applied by gas or other flame. This form is to be avoided. No. 2 is a good type. It consists of one or more cupboards, one above the other. Through the cupboard is an iron pipe of good size, surrounded by a small inlet and outlet holes. By means of a lamp or other source of heat, a current of hot air passes up the tube *T T*, and warms this tube, which in turn warms the air in the chamber, causing it to ascend and pass out. The tissue to be dried is supported on glass plates, which in turn rest on suitably placed shelves or laths. The third type is that of closed box. The upper and lower parts being connected by a U-shaped tube of metal. Calcium chloride or some other moisture absorbent is contained in shallow dishes on shelves as at *D*. The tissue to be dried is supported on glass plate *P*, face down, and just over the calcium pans. Heat applied by means of a small lamp *L* to the lower angle of the tube causes the air to ascend and so circulate in the chamber. To prevent the tissue falling into the calcium pans, they may be covered with netting. In drying, the surface of gelatine may be broken or made irregular by various causes, *e. g.* (1), the variation of machinery, etc.; (2) irregular application of heat, *e. g.*, such, for instance, in the first form of drying box shown; (3) from particles of fat in conjunction with calcium salts; (4) from bubbles rising to the surface. A fall of the barometer may be the active cause in making bubbles rise by reducing the surface air pressure. It is quite a mistake to dry a plate by holding over a gas flame, because water is formed wherever gas is burnt. This may be shown by passing a cold piece of copper or other metal quickly through a gas flame when the metal will be found to be wet.

Surface tension plays a very important part in many photographic operations. It is, therefore, important to make oneself familiar with its effects by a few experiments. A small tube is dipped in a fluid. The fluid rises in the tube, showing capillarity, due to surface tension. Observe that the rising fluid does work against gravity. A pen dipped in ink or some other fluid. The surface tension of the ink is greater than the action of gravity, hence the ink does not drop off, but if the point of the pen be dipped in water the surface tension is altered—relieved—and ink flows down by force of gravity. Tendency of fluids to form spherical forms, *e.g.*, globule of mercury, drop of water, small mass of gelatine. Experiment: A flat-bottomed glass vessel, *e. g.*, flask, wine glass, etc., is attached to beam of a balance (pan removed) and exactly counterpoised by weights. The bottom of the glass vessel is now permitted to rest on surface of water. It is now found that more weight has to be added to the pan to cause the vessel to part company with the water. A small quantity of ether is now added to the water, and it is then found that much less weight is needed to make the glass leave the water. Hence we infer that the surface tension of ether is less than that of water. Application of this is familiar to the collodion worker who dips his collodionized plate into a bath containing silver salts with some alcohol and ether. Hence in order to make his aqueous developer flow evenly he has to reduce its surface tension to that of the bath by adding to it some such substance as alcohol, acetic acid, etc. Air bubbles are a serious matter to the process man, and he should recognize the condition of their formation. Experiment: A narrow tube, say 12 inches, is about half filled with water, and then filled up to a mark with alcohol, and tightly closed. The tube is shaken, when two things are observed, (1) the mixture does not now reach the original mark; it is contracted in volume; (2), bubbles are seen rising from the mixture—pressure has been reduced and the air dissolved in the water is now set free. Soda water is poured out into a tumbler; presently bubbles cease to rise, but on disturbing the fluid, or by shaking—stirring, bubbles again begin to form. Observe that any rough surface or point aids as a starting-place for the bubbles.

No 1.



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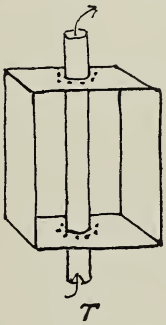

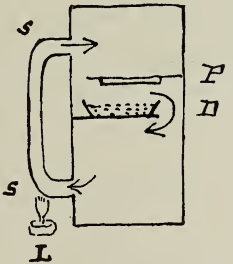

No 3

A fall of the barometer will cause air in solution of gelatine to rise to surface. This is a most important point to the collotype worker. Water is enclosed in a flask and tightly corked, a tube passes through the cork, and atmospheric surface pressure reduced by pump or by suction, when bubbles will form and rise. A film of gum water is spread on a glass plate and a little alcohol sprinkled on. It penetrates the gum by reducing surface tension, but on evaporation the depressions close up. A relatively small quantity of alcohol will affect a large surface, as the wet-plate worker knows from experience. Gelatine often contains what tends to unequalize the surface tension, *e. g.*, fat, soap, oil, etc. One good way of equalizing this disturbing element is thorough mixing by means of a small churn. Irregularities due to presence of alum are often localized in effect and cause serious trouble. The albumen method of purifying gelatine should be known. White of egg mixed with about equal quantity of water is added to a solution of gelatine at a temperature a little below that required to coagulate the albumen and rendered alkaline with ammonia, which emulsifies the oily matters. Acetic acid is then added, setting free the fatty acid, and the clot of albumen carries down with it the impurities of the gelatine. This method seems due to the independent suggestions of Swan & Woodbury, but is not very generally known. It is applicable to fish glue as well as gelatine. Mr. Bolas showed the results of an interesting experiment which seems to contain the germ of a valuable process. Calico is sensitized with a solution of potassium of bichromate, dried and printed, yielding an image only slightly visible. It is then well washed to get rid of the bichromate salt, and next boiled in a very dilute solution of alizarine, and finally boiled in soapy water. The specimen shown gave a very fair picture in turkey red. A companion process was mentioned. Paper sensitized in potassium bichromate is printed and washed in the usual way, and then bathed in a solution of iron sulphate, and finally heated with pyrogallic acid or gallic acid, which forms an ink image in gallate of iron. The essence of this process seems to depend on the fact that according to the strength of the primary bichromate image, so is the aqueous coloring matter absorbed or repelled.

F. C. Lambert.

GRANULOTYPY.

By C. Fleck.

BITUMEOGRAPHY, or Resinotypy, might also be called the simple zinc-etching process I will describe here. It is built upon the different use of partly light-sensitive and partly ordinary resins. This etching process upon zinc meets a long-felt and actually pressing want, regarding etchings from crayon and pencil drawings. To print these drawings from an ordinary negative and etch them subsequently, is not advisable on account of too much retouching being required, and loss of detail from the original. This kind of drawing was, therefore, always made by the half-tone process. But even in the face of the most laborious efforts, the results were not entirely satisfactory. If the ground was scraped off, or the drawing had to be covered up, the latter, without the artificial help of an engraver, would be in such a condition, that the original could hardly be recognized again. If, to simplify the matter, the screen was left on the drawing, this benefited the reproduction in so far as the total impression of the picture had a quiet effect, although the squared ground exercised a kind of dull pressure upon the drawing. The deepest shadows were spotty and rough, where the paper grain came in unharmonious collision with the screen point. To remedy this defect is the purpose of the process invented and tried by me.

A good negative is made from the original, sufficiently dense, so as not to let the ground print through; a negative, therefore, which does not possess the hardness of a line-negative, but is of full strength, such as would be required for lichtdruck. Pyro and gold intensifier are here in their proper place, the former for the developing process, and the latter for after-intensification.

If a suitable soft negative is ready for use, the next step will be the preparation of the zinc plate. The greasy and fatty substances on the same are removed by polishing with tripoli and water, then drying and slightly heating, after which it is put into the dusting box, the same as in the photo-engraving process. The dust is fastened to the plate by melting, and the latter is then etched in the following etching-bath from two to three minutes without the use of a brush.

Nitric acid..................	15 cubic centimeters = 4 drams 14 minims.
Muriatic acid..............	5 " " = 1 dram 25 "
Rubber solution, strong....	20 " " = 5 drams 38 "
Powdered alum.	10 grams = 2 drams 34⅖ grains.
Water	1,000 cubic centimeters = 34 fluid ounces.

The duration of action of this etching bath depends solely upon the quality of the zinc, as well as the quality of the acids employed. The etcher has to depend a little upon his experience and knowledge to hit the correct depth of the grain. After the zinc plate has been grained in this way, it is washed, heated, and the grain removed with spirits of turpentine, at which stage the plate is made ready for printing with potash solution or by brushing it with chalk and weak hydrate of potassium. As a printing medium the bright sensitive asphaltum solution comes to rights again. Coating, printing and developing is done in the well-known manner. Retouching should be done as little as possible. The plate is etched in the above bath from two to three minutes only, by shaking the dish. If the brush should be required, and that might be necessary when the asphaltum picture has been exposed too long, it must only be done shortly before the plate is taken out of the etching bath. The plate is then gummed and inked with the roller, dusted with resin or sandarac powder, lightly heated, without bringing the powder to a melting point, and again etched from two to three minutes in the above etching bath, previously strengthened with a 1 per cent. acid. Taken from the bath, the washed plate is heated and brushed over from four sides with dragon blood. The plate is now treated like an ordinary line drawing in the usual way.

This, in a short outline, is the process of granulotypy.

It may appear for the first moment to be a little troublesome, but this is not the case, considering that the following manipulations are not required:

1. Taking the picture with the screen.
2. The troublesome covering up of the drawing, or scraping of the screen ground.

But, even if this process should require more time than the regular autotype method, a more correct and faithful copy from the original (a result not to be denied) would be sufficient recompense for its adoption.

Translated by Henry Dietrich.

FLASHLIGHT PHOTOGRAPHY, by Fitz Guerin, President of the Photographers' Association of America, is a book which ought to be in the hands of every photographer. Mr. Guerin is a past master in flashlight photography, and the book is made up of forty-two illustrations of his work, with full, clear and practical explanations and descriptions of his methods. Price, cloth bound, $1.50.

THE ENCYCLOPEDIC DICTIONARY OF PHOTOGRAPHY, edited by Walter E. Woodbury, editor of *Photographic Times*, is a compilation of photographic information which, as its name implies, forms a very complete reference library in itself.

It is published in book form from the pages of the *Times*, where it has appeared in its monthly issues, and contains over two thousand references and five hundred illustrations. The work is a credit to all concerned in its production, and an acquisition of value to any photographic library. Price, $5.

SECOND STEP IN PHOTOGRAPHY, by F. Dundas Todd, is a text book designed to follow the *First Step in Photography*, and treats of the application of common sense and brain power to the absolutely essential points needed in the chemical work of producing a photograph, and has as its object the teaching of people to make pictures instead of mere photographs. It is a valuable assistant to the beginner, and will be of undoubted good to the amateur. Price in paper covers, 50 cents.

THE PHOTO ERA is the title of a new photographic monthly publication under the management of J. C. Abel, of Boston. It is published in very attractive form, and edited with great care, as appears from the first three numbers. We welcome the *Photo Era* to the field of photographic literature, and wish it all success.

THE OPTICIAN'S HAND BOOK, an introduction to the study of the refraction of the eye, its anomalies and their estimation and correction, is a well-gotten-up volume of one hundred and twenty-nine pages, treating of the subject-matter indicated by its title, and of interest to opticians in particular and to photographers in so far as the law of optics is the basis of photographic manipulations. Price, $1.50. For sale by our publishers.

PHOTOGRAPHY, by Rev. A. H. Blake, M. A., being a chapter on the art and practice of photography, claims to be nothing more than a porch to the larger works now in circulation, and aims to give a little practical help to the beginner at the very outset to carry him over a few initial difficulties.

It is well gotten up and full of practical suggestions. Price in cloth, 40 cents.

THE SOUTHWESTERN PHOTOGRAPHER, Vol. 1, No. 1, published by C. Weichsel, Dallas, Tex., is before us, and is a trade journal containing 16 pages of photographic interest and advertisements. We wish the publication all success, and hope it may live and flourish like the green bay tree.

THE BAUSCH & LOMB OPTICAL COMPANY have just published a 32-page booklet on photographic lenses, shutters and accessories, which is illustrated by two photogravure prints, and the cover of which is executed by H. Ellis.

The entire catalogue is a credit to its producers, both editorially and typographically.

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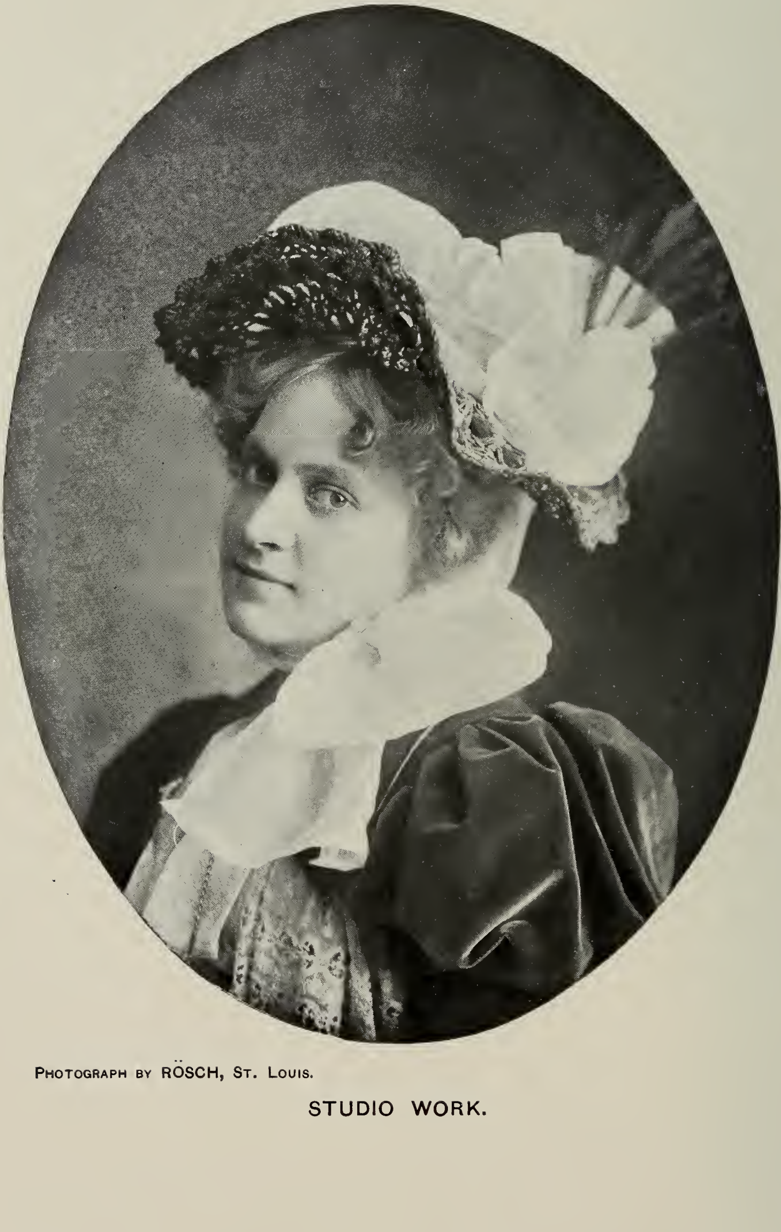

Photograph by RÖSCH, St. Louis.

STUDIO WORK.

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.
W. I. SCANDLIN.

VOL. XXIX. OCTOBER, 1898. NO. 10.

SIMPLICITY IN PHOTOGRAPHY.

THERE are few, if any, fields of art in which a stronger plea for simplicity of treatment can properly be made than in that of photography, and we are glad to see that there are evidences to be noted that this fact is beginning to be realized among our best men of to-day as it has never been before. Several instances were noticeable in the exhibits at Celoron at the recent convention of the Photographers' Association of America, and, doubtless, have been repeated in more recent State conventions. One of the former which impressed us more, perhaps, than any other there was the beautifully handled portrait of a child by Schumacher, of which Professor Griffith made the statement in open meeting that he "would rather have the honor of making that picture of a child than to have the diamond badge." The picture is simplicity itself, only the head and bust of a young child, full of sentiment and sweetness, and without one single accessory or embellishment to detract from its beauty and ideality. It tells a story and leaves an impression that grows deeper as the picture itself is put aside and only the memory of it remains. Others there were, possessed of this same characteristic to a degree, and we predict that as time goes on many more will be produced that will fitly be classed with it, and the more our art may be made to picture the simple things of life, the fragments of our living, without trying to cumber the representation with its minutiæ, the more shall we raise photography to the standard of artistic merit that will command for it the meed of praise so grudgingly bestowed to-day. Photography is realistic and mechanical in its rendering of detail; and, while the artist may introduce many subjects and accessories into his work, he has the power of selection, rejection, composition, and, above all, the modification of tones and values which the photographer has not, and while his interpretation may be strengthened by their introduction, if made to accent the principal ob-

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ject of interest, the photographer finds himself handicapped by the cruelly realistic effect of his efforts in this direction. It is no more true in its relation to studio work than to landscape photography, nor is it less so in one case than the other; and as a landscape or view from Nature may be spoiled by too wide an angle of view, so may a beautiful face or figure be ruined by the complexity of subject, pose or lighting, which leads the eye from point to point, and finally leaves the observer bewildered, confused and dissatisfied, where the reverse should be the case.

By holding to simplicity in composition a tremendous concentration of interest is possible by reason of one's ability to focus the attention on a single point or portion of the picture, while complexity of ideas or arrangement breaks up the harmony and weakens the effect most sadly. Let us, then, encourage this movement for simplicity and directness in photographic work, bending our energies to carefully studying out our themes and giving our best thought and effort to their rendition in such a manner that they may live in men's memories and become more beautiful as they are studied and remembered.

AN INTERESTING QUESTION.

FROM reports which have been published in the lay press during the past few weeks, it seems likely that developments of a very interesting nature to the photographic profession may shortly be looked for in regard to the ownership in the patent rights under which photographic films have been manufactured, since their invention in 1887. It seems that on May 2, 1887, the Rev. Hannibal Goodwin applied for a patent on the process of making films, and sent samples of his invented film to the Patent Office.

It is stated by Mr. Goodwin that during the investigation of his patent claim, the Eastman Dry Plate Co. filed an application for a patent on the same process, and that since the date of the Eastman application there has existed, almost constantly, a series of interference questions, which have now been settled in favor of Mr. Goodwin and the patent granted him September 13, 1898. If no further contest is made of Mr. Goodwin's claim and the patent as issued stands, he will doubtless find himself well repaid for the twelve long years of waiting and litigation, as to those who are at all familiar with the premises, the magnitude of this question will be apparent at a glance.

* * *

THE death is announced, under date of September 6th, of Mr. Henry S. Brown, one of the pioneer photographers of Milwaukee, who is well remembered by many of the old residents of that city, where he opened a daguerreotype gallery in 1848, working from daguerreotype into ambrotype and later into photographic lines. Some years ago he left Milwaukee and has made the East his home until the time of his death. He was past eighty years of age.

Items of Interest

THE old question as to whether the printing of negatives in differing lights produces the same or different results in the finished print, has been brought to the fore in one of the London Societies' discussions, and commenting on it, the *British Journal* in a recent number deplores the fact that modern workers, both professional and amateur, do not seem to possess the technical knowledge attained by practical experience which those workers of two or three decades ago had at their command. It is undoubtedly a fact that few printers working with the papers of to-day are as familiar with the chemical results possible under different lightings from the same negative as were their predecessors in the galleries of a half generation back, and it will probably be a revelation to many if an experiment with, say, one single negative be made under varying conditions of lighting. It is quite possible that the results obtained by such an experiment will prove of practical use in future work.

* * *

FOREIGN journalists who attended the festivities connected with the inauguration of the young queen of Holland were accorded unusual courtesies by the press of the city. Every representative of the newspapers, who was duly accredited, received among other attentions a very elaborate pocketbook or card case containing his own photograph and a permit to attend all the public ceremonies, with free transportation over all railways within the kingdom. Attentions of this sort are like angels' visits, few and far between, but when presented are duly appreciated.

* * *

THE *Photographic News* suggests that a vast amount of good might be obtained by the investigation, by a committee appointed by one of the leading societies, to examine and test all the formulas which have been published heretofore, with the idea of reducing them into something like uniformity. The *News* admits that it would be a very big task, and an expensive one, and suggests that "several societies might well apply their spare cash in this manner, and do a lot of sound, honest work with excellent results to the average worker." The suggestion is a capital one, but reminds us somewhat of the fable of the mice tying a bell to the cat's neck. Perhaps, however, by the time that a uniform system of diaphragms, lens mountings, weights and measures have been achieved, and various other practical difficulties of this kind overcome, we may look for this also.

With the advancement and progress of half-tone printing and process work in general, together with the introduction of the finer coated papers necessary for the reproduction of the plates and type so much in use at the present day, has come an objection which is very serious, and has lately been given considerable attention by a number of German oculists. According to the results of these scientists, their effect is extremely bad upon the eyesight of students and those reading largely. It is proposed that public inspectors of schools should see to it that glazed or highly polished surface papers should be avoided, and that the colors used should be of a gray or light blue, and not white. Objection is also made to the thin type bodies, and comparisons between the old books printed in the thicker bodied type shows that there is much to commend in this suggestion.

◆

A new method of development for snap shots is suggested by Mr. W. C. Harris, in *Camera Notes* as follows :

"Begin with development as usual, and continue as far as is safe without causing a chemical fog. There is now a superficial negative, no faint image can be seen on the back of the plate, but it seems brilliant and shows abundant detail by transmitted light. If the plate were placed in the fixing bath at this stage nearly all the image would be lost. Instead of fixing, however, and without removing from the developer expose the plate to a white light for a few seconds, and continue development until a positive image appears on the back of the plate. Then fix as usual. By this process the usual superficial image is used as a negative through which a positive is printed in the underlying and unaffected portion of the film, and if the proper times of exposure and development have been given, a most pleasing positive without fog, and showing all the detail developed in the primary negative, would be the reward of the labor. From these positives, negatives may be made either by contact or enlargement, and they will contain much more detail than could have been secured from the original exposures by the ordinary process."

◆

An interesting attempt is to be made in the near future by Captain C. Spelterini to cross the Alps in a balloon; his purpose being to make meteorological and topographical observations. The attempt is to be made under the auspices of the Swiss Weather Bureau, and a number of Swiss scientists. A fine equipment of cameras and photographic apparatus will be carried, and particular attention paid to photography of the formation of vapor and clouds in high altitudes, photographing of mountains, and general scientific photography.

◆

The death of Mr. William H. Sherman, of Milwaukee, is announced as having occurred on the 7th of September, at his home in that city. Mr. Sherman was one of the veteran photographers of the West, and a man who was well-known and highly esteemed by all who knew him. He was the inventor of many appliances for use in photography.

Volume XI of the "International Annual" is now rapidly nearing completion, and judging from the advance sheets that we have seen, it is destined to be ahead of last year, which means ahead of any previous volume. The "Annual" this year will contain between eighty and ninety specially contributed, original articles on topics of live photographic interest, and will be more profusely illustrated than ever. It will be published early in November, and will be a valuable acquisition to any photographic library. We understand from the publishers that a large number of advance orders have already been entered.

◆

At the recent convention of the Photographers of Nebraska H. Lancaster, of Omaha, was re-elected President, and J. Leschensky, of Grand Island, was elected First Vice-President; S. Soddenburg, of Sutton, Second Vice-President; W. P. Fritz, of Fremont, Secretary, and A. Smith, of Crete, Treasurer.

The diamond medal for the best photograph was awarded to Mr. Pirie Macdonald, of Albany, N. Y., whose stock of decorations seems to be growing rapidly of late, while the first prize in Class A was won by Heine, of Omaha, with J. Leschensky second. Professor Griffith addressed the convention, and entertained the members in the art annex of the Exposition, of which he is in charge.

◆

The Eighth Annual Convention of the Photographers' Association of Ohio closed its meetings on the 2d September at Columbus, O., after a very successful convention. Put-In-Bay was the unanimous selection for the next Convention. Mr. Isaac Benjamin, of Cincinnati, took the grand prize, and W. A. Brenner, of Cincinnati, highest honor, a certificate of honorable mention.

Isaac Benjamin also took first prize in Class A, with A. L. Bowersox second, and W. H. Minns third.

Twenty pictures were selected from the various exhibits for the salon. Mr. Lorado Taft, of Chicago, delivered a fine address on "Famous Portraits" before the members of the convention on the evening of September 1st.

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Julius Abraham's photographic gallery, No. 229 Bowery, New York, was damaged by fire to the extent of $2,000 on the evening of September 3d. The fire, which is thought to have been caused by spontaneous combustion, occurring in the early evening, caused a good deal of excitement in the densely crowded vicinity, but was quickly controlled.

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A fire of large dimensions occurred in Nashville. Tenn., the 30th of August, and claimed among its other victims Thuss Brothers, the well-known photographers of that city, who are reported to have lost over twenty thousand negatives. They are to be congratulated, however, that their loss was not heavier, as they had about forty thousand more stored in another part of the building, which escaped injury.

We learn that the Berlin factory of C. P. Goerz, in Friedenau, gave to its entire force of workmen a vacation from the 4th to 11th of September, with full pay. This plan was inaugurated last year in this factory, and while the expense is great, the results are such that it is the intention to continue it hereafter.

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The Eighth Annual Exhibition of the Toronto Camera Club will be held from the 6th to the 10th of December next. There will be open classes much the same as last year, full particulars of which we hope to give in the November issue of the Bulletin.

◆

The Second Salon and Exhibition of the Detroit Camera Club is to be held November 21–26 inclusive at the Detroit Museum of Art. There will be three divisions—the salon, the general exhibition and lantern slides. The exhibition will be open to all artistic workers throughout the world, subject to conditions as set forth. Full information and blanks for entry may be obtained from the Secretary, Mr. George O. Pratt, 720 Antoine street, Detroit, Mich.

◆

At the forthcoming Paris Exposition of 1900, a prominent feature will be made of educational matters, in which photography will occupy a very conspicuous place. It is listed under works of art in group 3, and it is expected that the finest and most elaborate display of photographic appliances ever shown will be made.

CLIPPINGS FROM GERMAN SOURCES.

Prints from Hard Negatives.—Coat the negatives to be reduced on the glass side with chloride of silver collodion, expose until a positive appears on the glass side, and then fix and wash. In this way the negative will become essentially softer.

Coating on the Reversed Side for Glass Negatives.—To avoid the formation of halo with glass negatives, Ducos du Hauron recommends the following process :

Twenty parts of pure paraffin are melted by moderate heating with the same quantity of olive oil, 10 parts of very fine soot are added, the mixture is well stirred, and is then left to cool. The coagulated mass, after having been melted, is applied to the glass side of the plate with a soft wide brush, and before developing, the black coating is removed again with a flexible knife. It can easily be removed and is absolutely insoluble. D.

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Copy for November issue must be in our hands not later than October 15th.

FIXING SODA IN THE CARDBOARD.

By F. Stolze.

If a photographer discovers light spots on his prints, his first suspicion is that the cardboard upon which they are mounted may contain hypo or fixing soda. Now, fixing soda may be the cause of these spots, but it is not necessary that it should be in the cardboard.

If in paper manufacture fixing soda, or better, sulphite of soda or carbonate of soda, is applied to remove the last traces of the chloride used for bleaching, this is done before the final fine grinding of the mass.

The surplus in soda salts is thereby always very small, and the pulp is thoroughly washed. This shows clearly, that in the paper made from the pulp, even if a small quantity of fixing soda should have remained, only an entirely uniform, but never spotty, distribution of the injurious materials can take place. But if this is the case, separate spots will never occur upon the prints mounted on cardboard containing fixing soda. Only a general yellowing of the picture may take place, commencing with the bleaching of the half-tones. If other spots appear, and the chemical examination proves that soda is in the picture, it must have gotten there in some other way.

Regarding now the chemical examination, how can we determine, that fixing soda—and this only is injurious—is in a mounted picture? The general reply will be:

By the iodide starch test, soaking the picture to be examined well with distilled water, and putting in each of two beaker glasses 10 cubic centimeters pale blue iodide starch, and then in one glass 10 cubic centimeters distilled water, and in the other 10 cubic centimeters of the water in which the picture was soaked. Then shake well, and see if in the course of two or three minutes the liquid in the second glass becomes lighter than in the first. If this is not the case, there is no soda in the picture.

This is perfectly correct, but if the second liquid becomes lighter, is that proof that fixing soda is in the picture? By no means, numerous salts, among others the sulphite of soda or carbonate of soda, known as chloride destroyers, have exactly the same discoloring action. If the picture was soaked in warm water, some glue matters might produce the same effect. It is therefore necessary, to let a second test follow the iodide starch test, or replace it entirely by the same, that is, by the silver test. If a few drops of a 2 per cent. nitrate of silver solution are added to a small quantity of the soaking water in a beaker glass, the color will become yellow brown after half an hour's standing and the exclusion of light, provided the solution contained sufficient fixing soda. Exclusion of light is required, because organic bodies might also produce a yellow coloration under the influence of light.

Has it now been actually entirely proven, that fixing soda is in the print, and if the latter has not become yellow throughout, but shows only spots, the question is, where does the fixing soda come from?

That it can only come from the positive process, is clear, but from which part of it does it come? The conscientious photographer has a riddle to solve here. And still there are quite a number of causes which might produce such spots, as follows:

(1) Even the best automatic washing apparatus offers no complete security, to prevent pictures, while in the bath, from sometimes sticking together, and such will therefore not be thoroughly washed. The larger the quantity of prints, the larger is the danger. Only washing boxes, in which the prints are held separated by some arrangement, offer a certain security. But what is the consequence, when two, three or more cases take place in a day? When the prints are put between blotting paper this takes up a part of the injurious solution. Every day adds more injury, and finally the blotting paper will look like a yellow fever patient.

(2) Even the most thorough washing will not remove every trace of fixing soda. The solution is only diluted until its injurious action ceases. Suppose the solution was 1:1,000,000, which can be proven by the iodide starch test, but not by the silver test. If blotting paper is impregnated with such a solution, then dried by suspending it, and this is repeated one hundred times, the solution in the last paper will be 1:10,000. But this is a percentage which to a high degree has to be considered injurious. And still the photographer does exactly as described here by putting his prints for three months between the same blotting papers. A little fixing soda is, of course, dissolved again each time from the paper by the fresh, well-washed prints, and it will therefore not accumulate so quickly, but it can be seen that this way of dissolving can be only partial. If the wet prints are placed upon the dry blotting paper, this will curl so that the prints come only partly in contact with the same. The closer the contact, the more fixing soda will be taken up by the prints from the apparently harmless blotting paper. Every photographer should submit his blotting paper at least once a week to the iodide starch test by soaking a sheet with a minimum of water, squeegeeing the same and testing the liquid so obtained.

(3) It can hardly be believed how carelessly the fixing soda and the fixing baths are sometimes handled by photographers. Crystals of the salt are left on the floor of the same room in which the blotting paper is suspended to dry. The fixing bath is also spilled, and covers the floor, penetrating into the wood. Every step through this room will fill the air with thousands of these minute crystals, some of which will settle on the blotting paper, and be, later on, the cause of small or larger spots.

(4) But, what now, if no trace of fixing soda can be discovered in the print, the cardboard, or even the blotting paper, and still all possible spots make their appearance? The cause is in the uncontrollable presence of numberless germs of smallest animal life in our atmosphere, and the manner in which they are actually nursed by the photographer by handling prints and blotting paper. The prints remain for hours in a moist condition before they are trimmed. After trimming they are packed and covered with moist blotting paper, and

remain in that condition oftentimes for days. After mounting they are left in the press for some time before they are dry. Is it then to be wondered at, that spots will appear?

All these cases are, of course, more or less exceptions, but still it will do no harm to call the attention of photographers to these facts, and to advise the utmost care in handling everything connected with fixing soda in crystals or in solution.

Translated by
HENRY DIETRICH.

THE CARE AND PRESERVATION OF PHOTOGRAPHIC LENSES.

IN an article on the care and preservation of photographic lenses, a writer in a recent issue of the *British Journal of Photography* calls attention to the fact that great trouble may often arise from impairment by age, and use of the mounts and diaphragms of lenses as well as from the improper care of the glasses, and proceeds to say:

"A professional friend, acting on the suggestion we made a little while back on stereoscopic portraiture, determined to make some practical experiments in that direction. To that end a disused bi-lens *carte* camera, of early date, was unearthed. One lens had been *in situ*, the other had been removed and brought into pretty frequent use for other purposes. This was now replaced on the camera as at first. It was found, however, that the two halves of the negatives taken with them were unequal; one seemed to be brighter and crisper than the other. The one taken by that which had been in use appeared to have received more exposure, or, rather, was flat and fogged, while the other was crisp and brilliant, and seemed to have been taken by a better instrument. As the lenses were by one of the leading makers, and they were originally supplied as a pair, some old negatives, taken with them years ago on wet collodion, were looked out, and they all appeared identical in the two halves. Light in the camera was at first suspected, but a close inspection failed to reveal it, and little or no difference could be detected between the images on the focusing screen. However, on our removing the ground-glass, and with our head sheltered with the focusing cloth, we found, on looking through the lenses, that the cause of the trouble was at once apparent. It was due to reflections and flare from the inside of the mount of the lens that had been in use. It had become polished, and a great deal of the blacking worn off by frequent cleaning, as well as from the stops. The insides of both mounts and the stops were sent to be reblacked, and it was then found that the two instruments worked in perfect unison.

"Although the lens with the defective mount had been in pretty constant use, no fault was noticed with it, and it was only when it was again put to work with its twin brother that its shortcomings were discovered. This incident serves to show how the gradual deterioration of an instrument may remain undetected, though, of course, the negatives taken with it are not so good as they might have been. In the case just cited the lenses were portrait combinations, and were only used in the studio, but the same thing applies, and in an enhanced degree, to lenses used out of doors, as they are worked in a stronger light, and the effect would be the greater. We have seen lenses of the rectilinear type constantly being used, the stops of which have been little better than naked brass, while the insides of the mounts, and particularly the hoods, were almost devoid of blacking. All this, of course, means impaired brilliancy in the negatives.

"Many lenses are now mounted in aluminium, and it will be obvious that with them still greater care is necessary than in the case of brass, as any removal of the blacking is a far more serious matter, inasmuch as it exposes a white metal instead of a yellow one. Stops in constant use become in time little better than bare metal, especially at the edges of the apertures, and thus by their reflections cause more or less loss of brilliancy in the image. The iris form of diaphragm is a great sinner in this direction, as, by reason of its construction, the leaves or vanes are in constant friction while being set, and thus quickly become bright polished and reflective. For this reason, we know, several photographers, notwithstanding the convenience, will not have iris diaphragms in their lenses.

"In the days of wet collodion, when the deepest shadows in the negative were represented by bare glass, any lack of brilliancy was more quickly observed than is the case with gelatine plates, though it may be present all the same; therefore those who aim at obtaining the best work their lenses will yield should periodically examine them and the mounts, particularly as any shortcomings in the latter can be remedied by themselves and with little trouble. This is best done by focusing some well-illumined subject and then removing the ground-glass screen, covering the head with the focusing cloth, and then looking through the lens to see if any light is reflected from the inside of the mount or stops, or from the edges of the glasses. If so, the evil should at once be remedied, as this light reaches the plate, and, as a consequence, more or less impairs the brilliancy and crispness of the image.

"While examining the lens in this way it will often be noticed that the inside of the camera has become to an extent polished and reflective. The light so reflected reaching the plate militates against the brilliancy of the negative, and sometimes is an unsuspected source of fog. This, of course, is easy of remedy.

"As we have already said, much of the perfection of results depends upon the 'tools,' *i. e.*, the lenses, with which they are produced; therefore, it is to the interest of every one who pays a high price to obtain the best instrument for his work, to take the greatest care to retain it in its original and, consequently, best condition, and to see that it is in that whenever it is employed. A lens, however excellent, is only used at its best when the glasses are perfectly clean and the inside of the mount and fittings are as dead a black as black can make them. The same also applies to the camera."

STOCK SOLUTIONS.*

THE preparation of the various solutions that the photographer requires is a matter that deserves a little attention, even from those who most rarely need to use them. To weigh out the small quantity of substance required every time it is wanted would generally be inconvenient, and sometimes impossible. For example, the fifth of a grain of potassium bromide is often used in preparing a developer for a few small bromide prints, and it would be practically impossible to weigh such a quantity with the scales in common use, and if special scales were provided, the weighing would be tedious, and probably less accurate than the usual method of preparing and measuring out from a stock solution. There is no need to insist on the greater convenience of measuring a solution as compared with the weighing out of the solid substance, but the superior accuracy of the former operation is not often noticed.

Accuracy in such matters depends upon both the weights and the scales, but, taking all things into account, the proportion of error is likely to be less as the quantity to be weighed increases, until nearing the maximum load for the scales used. The error of subsequent division is likely to be less when small bulks of liquid are avoided. Under usual circumstances, the measurement of 4 ounces would probably involve a smaller proportional error than the measurement of 4 drams; and the measurement of 4 minims, instead of 4 drams, would tend to increase the proportional error. But, on the other hand, very large bulks are not desirable, and solutions that are very dilute would be inconvenient. A solution of chloride of gold for toning may with advantage contain only 1 grain to the dram, or it may even be twice or four times as dilute, without any other drawback than that a larger bottle must be used to contain it. But a solution of sodium carbonate of such a strength as this would be of little use; it is better to contain 1 in 10, rather than 1 in 60, or 1 in 200 or 300.

It is impossible to dispute with more than a shadow of reason that the metric system of weights and measures is far superior to our English system for the preparation and subdivision of such solutions as the photographer needs. But we hesitate under existing circumstances to advise photographers to adopt this system in their ordinary practice, because the difficulties met with would probably outweigh the advantages The glass measures marked in cubic centimeters are invariably of tubular form, and, although this is conducive to accuracy, such measures are very awkward to use in developing. Gram weights can be purchased, but, in our experience, the cheap sets are very faulty. English formulas are always set down in English weights and measures, and, in short, if an English photographer adopts the metric system, he feels that he is going against the stream. The writer is equally familiar with both systems, and employs both daily, but invariably uses English weights and measures in connection with photography for the sake of convenience. But, on the other hand, he would welcome a change, because of the great facilities that a decimal system offers, and the immense advantage of uniformity with other nations.

The chief difficulty that photographers find in our weights and measures is due to the ounce of water being divided into 437½ grains, and also into 480 minims. We are told to use grain measures instead of minims, and measures so marked can be obtained, but this is an exceptional procedure, and as such leads to difficulties. A 10 per cent. solution is prepared by dissolving 1 ounce of the solid, and making the solution up to 10 fluid ounces. Such a solution contains 1 ounce by weight in 10 ounces by measure. But what is often understood as a 10 per cent. solution is one of which 10 minims contain 1 grain, and is not really a 10 per cent. solution, as it is thought to be, because the minim is not the measure of a grain of water. For a solution that shall contain 1 grain in 10 minims, obviously 48 grains must be dissolved, so as to form 1 ounce, or 480 grains to form 10 ounces of solution, because there are 480 minims to the ounce. The real 10 per cent. solution contains 43 grains and three-quarters to the ounce.

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* C. J., in *Photography*.

The bulk of a solution varies with every change of temperature. As the temperature rises, the bulk increases; as it falls, it decreases. To approach accuracy, therefore, in the subdivision of solutions, the temperature should be kept as nearly uniform as possible. So far as the accuracy is concerned, it matters nothing what the temperature is; it is only the change of temperature that should be guarded against. In the preparation of solutions it is best to measure at an average temperature, say, 60 degrees Fahr. Then in hot weather the measured bulk will contain less than the normal quantity, and in cold weather it will contain more, but the error will never be so great as if the solution were prepared at one extreme of temperature, and when the seasons changed measured at the other extreme. But the question of temperature is not only a matter of the seasons, as many substances are dissolved by heating the water, and in most cases the act of solution lowers the temperature of the water, though sometimes the opposite effect results. The making up of the solution to the required bulk should not be finally done until the temperature of the solution approximates to the average; that is, in more homely language, until the solution is cold, if it has been heated, or has recovered its temperature, if it has been cooled.

Some compounds, such as pyrogallol, and potassium bromide, dissolve so easily in water that it is hardly worth while to do more than put the substance in the bottle, add the water, and shake it up until solution is complete. But, generally, when strong solutions are required, as a saturated solution of potassium oxalate, or the ordinary solution of hyposulphite of sodium, this method is too slow to be satisfactory. As the crystals dissolve, the liquid becomes heavier; and if they lie at the bottom of the vessel, they soon become surrounded with a dense layer of a saturated solution, and the process comes nearly to a standstill. By holding the crystals up in the higher part of the liquid, the solution as formed descends, and the crystals rapidly dissolve, because they are always in that part of the liquid that has the greatest solvent power. A convenient form of apparatus for this purpose consists of a hemispherical porcelain vessel perforated with small holes, called a crystal drainer. One of these may be placed in the top of a beaker, or a glass crystallizing dish, which is much shorter compared with its diameter, and, therefore, suitable for preparing a smaller quantity, the crystals being placed in the perforated vessel, and water added until it just reaches them. The solution will then make itself without further attention. In the case of sodium sulphite, however, it seems preferable to take advantage of the much greater solubility of the salt in hot than in cold water, and this gives the opportunity of boiling the water a little first to drive out the air dissolved in it.

It is generally better not to use saturated solutions, except, perhaps, in the case of potassium oxalate, but to make solutions of known strength. If, for example, a saturated solution of sodium hyposulphite is prepared and diluted with a certain proportion of water for use, a weaker solution will be obtained in cold weather than in hot, and the slowness of fixing resulting from the low temperature will be increased by the extra dilution of the solution. Moreover, a saturated solution is of uncertain strength, and the user of it never knows what he is using. As stated above, potassium oxalate solution generally cannot be too strong, but this is a quite exceptional case, for the whole of it present has not a specific chemical action ; a very large proportion is useful only, so to speak, in keeping the solution in proper condition.

Solutions that are liable to change, and so to deteriorate by the action of the air, such as developers, solutions of pyrogallic acid and sodium sulphite, are conveniently kept in bottles of so small a size that, after opening one of them two or three times, the contents are used up. It is preferable to use bottles with narrow, unground necks, and to close them with india-rubber stoppers. By this means, sodium sulphite solution may be preserved in good condition for a year or more. While it is, of course, desirable to avoid deterioration, there are very few solutions that may not be kept for many months if properly stored. A solution of sodium hyposulphite for fixing should never be used when newly made but should be allowed to stand at least a day or two to clear. If kept in stoppered or corked bottles, it will not notably deteriorate for many months.

A WORD TO FRIENDS ABROAD.

THE BULLETIN concurs very heartily in the opinion expressed by *Wilson's Photographic Magazine* for September, with reference to the tendency shown by several of the English journals of late, to condemn the whole American photographic press for faults committed by two or three journals, which can in no wise lay claim to being representative of the American photographic fraternity. We would add our protest at being classed, even by the broadest inference among those, who pander to the tastes of such as are satisfied and pleased by such examples as have lately been placed before them by certain of our contemporaries, and trust the time will come when photography and all who are in any way connected with it will frown down attempts to degrade the art. *Wilson's Magazine* quotes the *British Journal of Photography* of July 22d, as follows :

"We wish we could be instrumental in persuading those of our American contemporaries that reproduce, in half-tone, photographs of the nude or partly nude to abandon the practice. As a rule, the illustrations in the American journals are characterized by great spirit and variety, but in one or two instances the hand of discretion has for months past been absent from more than one editorial office on the other side, with somewhat unfortunate results as regards the 'life studies.' Here at home we have no hesitation in saying that not even in the least reputable of the gutter journals of London would the pictures of partly and suggestively draped females that appear with considerable frequency in some of our American photographic contemporaries be tolerated. On the few occasions when nude photographs of a purely cartographic nature have crept into British exhibitions, we have pointed out that camera studies of the nude offend rather than please the artistic perception, and we have been glad to know that our attitude in the matter has won general approval. But it has fortunately not been our duty to direct attention to the publication here of female nude studies draped in a manner which can only be described as suggestive and unpleasant. We trust our American contemporaries will take this hint in good part, and will abandon a a form of illustration which can have no effect but to degrade photography in the public eye."

And says : "This magazine is thoroughly in sympathy with the protest of the editor of the *British Journal of Photography* given above, and assures him that every respectable American photographic journal echoes his sentiments. The *Photo Beacon*, of Chicago, the *American Amateur Photographer*, and Anthony's Photographic BULLETIN, of New York, have already emphatically condemned the "life studies," so called, which during the past year or two have disgraced two or three photographic journals published in this country, but in no wise representative of the fraternity.

"We desire, however, to enter a strong protest against the habit common among our English exchanges of holding up isolated instances of this kind, and making comments thereon which reflect upon the whole American photographic press. We wish we could persuade them, as a matter of justice to all concerned, to name the offender when they make complaint. It is eminently un-English and unjust to hold "our American photographic contemporaries" up to contempt or ridicule for the sins of an individual journal. The editors of the *Photographic News* (Mr. E. J. Wall), and of *Photography* (Mr. Henry Sturmey) may be especially mentioned as given to this unfairness, and we regret that the editor of the *British Journal of Photography* (Mr. Thomas Bedding) follows in their footsteps. The majority of the editors of "our American photographic contemporaries" are quite as scrupulous about "matters of taste" as those who edit the English photographic papers, and urgently object to being referred to as disseminators of indecencies which "not even the least reputable of the gutter journals of London" would publish. Let the offender be named, so that the blame may not be attached to those who do not deserve it, as must inevitably happen where a general condemnation is published.

"While writing on this matter, and without in any way entering upon a discussion of the vexed question of the legitimacy or otherwise of photographing the nude figure, we may as well say that nine-tenths of the "life studies" which have come to our notice as produced in photographers' studios here and abroad are unfit for the public eye, have no legitimate reason for existence, and their publication is an act of indecency which all right-minded American photographers regret as keenly as our friends abroad.'"

ISOCHROMATIC LIGHT FILTERS.

By C. F. Townsend, F. C. S.

ISOCHROMATIC photography is in a state far from satisfactory; and this is especially true of the screen used for cutting off the violet rays. Even for the worker who approaches the subject from the scientific side the difficulties are considerable, but those who deal with the question from artistic motives must be entirely in the dark. The plates now on the market are fairly satisfactory as far as their capabilities extend, and, if used alone, consistent results may be expected from them; but when yellow or other colored screens are used to cut off various portions of the light, confusion reigns at once.

The aim of every photographer in using isochromatic plates is to obtain a photograph giving the same scale of values as the eye attaches to the different parts of the original. The eye is most sensitive to yellow-green light; the sensitiveness falls off rapidly through the orange and red on one side, and through the green and blue-green on the other, although the fall is less rapid through the blue and violet. What is required is an arrangement that will enable the photographic plate to possess the same sensitiveness towards the different parts of the spectrum as the human eye itself possesses. Unfortunately, the gelatino-bromide plate sees things from quite a different point of view to the human eye. The maximum sensitiveness in this case is in the blue, falling off to almost nothing in the green, and being practically unaffected by the yellow and red light. On the other side of the blue, however, the sensitiveness extends far into the violet and the rays beyond the violet, which are not perceived by the eye at all. For artistic purposes the effect of the invisible rays must be completely eliminated, and the activity of the others reduced until the proper relationship is obtained.

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* *The Amateur Photographer.*

There are two ways of reaching this ideal ; first, by modifying the light before it impinges on the plate, and, secondly, by effecting alterations in the plate itself. In practice it is found necessary to use these two methods in conjunction with one another, Certain organic dyes have an important influence in modifying the color-sensitiveness of the gelatino-bromide emulsion. In a plate dyed with ammoniacal eosin, the action, although still greatest in the blue and about the same in the violet, extends right up to the yellow-green, falling away rapidly, however, at this point. The action of ammoniacal erythrosin is to render the action of the light comparatively uniform from the green-blue to the end of the visible violet, but in the green-blue there is a sharp drop, similarly to that found with eosin, being followed, however, by a rise in the green, the maximum action being reached in the yellow, the effect extending in a lessening degree through the orange. The action of ammoniacal rose Bengal is very similar, but the maximum here is in the yellow-orange, extending farther into the red. Ammoniacal cyanin has its maximum sensitiveness actually in the red. It is not, however, to this portion of the subject that I wish to call attention at the present moment, but to the filters used to modify the light before it reaches the plate.

Out of a large number of light filters intended for isochromatic work examined during the year, I have found no two a like, or even bearing any resemblance to one other. The ideal method of testing isochromatic light filters is to photograph the spectrum of a standard light under standard conditions, which have yet to be defined. Failing this, the spectroscope was used as a test of quality, and the tintometer as a measure of quantity. The tintometer is a most useful instrument for photographic research where color is concerned, being in fact the only instrument that can be used in practice to measure quantity as well as quality of color The standards consist of three series of graded glass slips, red, yellow and blue. These slips are mutually equivalent, *i. e.*, 10 degrees of red is of the same strength as 10 of yellow or 10 of blue, and the three together absorb white light, as far as the strength of the glasses go, without making any color visible ; this production of neutral tint by three equal glasses being the crucial test of their equivalence. Without going into the various theories as to the manner in which the eye perceives color, it is sufficient to say that in practice the eye can only distinguish two colors in a beam of light, and these colors are adjacent in the ordinary spectrum order. By this I mean that the unaided vision only distinguishes such colors as a yellow-green or a blue-violet ; there is no such thing as a red-green or a yellow-violet. Several adjacent colors may be present, as in each of the tintometer standards, although the eye only perceives one. The red glass passes violet, red and orange, but the eye only sees red. The yellow glass passes orange, yellow and green, but the eye only sees yellow. The blue glass passes green, blue and violet, but the eye only sees blue. It is hardly necessary to point out that what a glass or transparent medium does not pass, it absorbs and destroys, although this is not always clearly understood. The brightness or dulness of a color does not depend on the color itself, but on the presence or absence of white light. A bright red is a red mixed with a large quantity of white light, while a dull red is mixed with little or no white light. The term " dull " must not be confounded with " deep." A deep red is a red containing a large quantity of red, which may or may not be mixed with white light. When people say that a particular color is " dark," they may mean either that a large quantity of actual color is present, or that little white light is mixed with it, or, to put it in plainer language, that the color is mixed with black. It is often difficult for an expert to determine which is the case without an actual analysis of the color. A clear understanding of these points will be of great assistance in orthochromatic work, especially in copying pictures. There is, however, another point that must be discussed before I can approach the subject of the screens themselves, namely, variation in the source of light itself. Colored transparent media absorb light in quite a different manner to a photographic negative, for instance, a tank of India ink. In these cases there is actual stoppage of the light by opaque particles, so that in a particular part of the negative, say, one-half of the surface is stopped up, and only one-half of the light can get through, no matter what the strength of the light may be. If the strength of the original light be represented by the number 40, the light that has passed through the negative will be represented by the number 20, and if the strength of the original light be represented by 90, that passing through will be represented by 45. But with transparent colored media the state of affairs is quite altered. A piece of glass, for instance, that is capable of developing 20 degrees of red light will continue to develop 20 degrees of red, whatever the strength of the original light may be (supposing, of course, that it is more than 20). If the original white light be represented by 40, the red glass will pass 20 of red and 20 of white light, but if the strength of the original be increased to 90, as before, the red glass will pass 20 of red and 70 of white light.

The ideal isochromatic light filter is one that will enable the particular plate used to appreciate colors in a similar ratio to the human eye. From this it is clear that a light filter may work excellently with one make of plate, yet badly with another. In the last paragraph it was shown that transparent media can only deal with a definite quantity of the light whatever its strength may be. Consequently the depth of color of the light filter must bear a relation to the strength of the light as well as to the nature of the subject.

Of the light filters examined I have found few or none that could be deemed really satisfactory. Most of them were orange-yellow in color, although a few were green. The variations in their spectra and in the tintometer readings of the quantity of color were very great, and if they were constructed on any principle except that of rule of thumb, each one must have been constructed on a different principle to all the others. No. 2 screen, for example, absorbed the green, green-blue and blue of the spectrum, but allowed the violet to pass. No. 3 stopped all light above the yellow in the spectrum. The different parts of No. 2 screen absorbed different total quantities and proportions of light, and this was even more noticeable in No. 3, which contained variations of 20 per cent. in the total light absorbed by different parts, besides variations in the proportions—rather hard on the picture that was being reproduced. No. 4 was a green screen, ingeniously devised to stop nothing but the red and orange. Why this particular screen was ever made has long been a mystery to me. No. 5 stopped the violet only. No. 6 a yellow-green screen, obstructed the red a little and shut out all beyond the blue. Nos. 5 and 6 combined shut out the red and all beyond the blue, and so on. The deepest colors of these screens had twenty times the absorptive power of the lightest.

Many of these screens consisted of dyed gelatine or collodion placed between two cover glasses. If their behavior has been at all analagous to the light filters for three-color half-tone work that I have examined, many of them must be mere shadows of their former selves by this time.

The moral of the whole thing is a very sad one, namely, that although a particular screen may work well with a particular plate under particular conditions, the general run of isochromatic screens now on the market are far from perfect. Surely the time has come when proper standards, verified by the spectroscope and the tintometer, should be fixed for each of the well-known color sensitizers, so that photographers should have tools they can depend upon, instead of the haphazard weapons for which they now pay high prices.

Copy for November issue must be in our hands not later than October 15th.

REVERSED NEGATIVES WITH PERSULPHATE OF AMMONIA.*

IN various branches of photography it is often necessary or desirable to reproduce a negative in a reverse condition, as regards left and right, in order to avoid the rather hazardous operation of stripping a valuable film from its glass support. There are two methods of doing this. The first, through the intermediary of a transparency, which may be made by contact or by any other method, but must be reversed by copying in the camera. The second, which has hitherto been practically confined to collodion plates, was formerly known as the " nitric acid " process, though of recent years other agents have taken the place of nitric acid with advantage. The process consists of printing a positive by contact or otherwise upon a dry collodion film containing only plain bromide of silver, or, at any rate, the merest trace of iodide, and, instead of fixing the image, it is treated with dilute nitric acid or other suitable solution until the developed image is removed and the silver bromide unacted upon by light in the first exposure is left behind, and when darkened by a brief secondary exposure, followed by reapplication of the developer, it forms a replica of the original negative, but with right and left reversed. The advantages of the method are its rapidity and the fact that it can be done in a single operation in the printing frame by artificial light and without the trouble of " squaring " and arranging the camera to secure correct proportions.

But so far as gelatine plates are concerned, this method has never hitherto proved of any practical value, owing, in the first place, to the destructive action of nitric acid upon the gelatine film. Some years ago, when the iron alums and ferric sulphate were substituted for nitric acid in the process as applied to collodion plates, it was hoped that these agents would be applicable to gelatine films, but, although they were deficient in the injurious action of nitric acid on the organic film, they introduced a difficulty of another character, which still rendered gelatine plates useless. While the silver image was removed, it was replaced by a deposit of some iron compound, which completely filled up what should be the clear portions of the negative. Signor Borlinetto more recently proposed a method, to which we shall refer presently; but this, while overcoming or obviating the last-mentioned difficulty, introduced another, which rendered the process in the highest degree uncertain in its results.

Within the past few months Herr R. E. Liesegang has called attention to the action of persulphate of ammonia upon the gelatine image, pointing out that it not only dissolves the reduced silver, but also, if sufficiently concentrated, so softens the gelatine in those parts that it is easily removed by friction or by a very slight rise in temperature. More recently still, MM. Lumière Frères and Seyewitz have proposed to make use of this solvent action of the persulphate of metallic silver for the purpose of reducing negatives, and we propose to show how the salt can be still further utilized in the production of reversed negatives in a single operation, for it will be remarked that its solvent action is unaccompanied by any of the disadvantages attending the other reagents hitherto employed.

Thus it has none of the corrosive action of nitric acid, nor does it deposit any insoluble matter in the place of the removed silver, as the iron salts do; and if the solvent action on the gelatine mentioned by Liesegang should arise in the case of using a strong solution of the persulphate, it will be borne in mind that it only takes place where the silver has to be removed, and in proportion to the quantity that has to be removed to secure proper gradation. In fact, if we push the application to the extent of utilizing the solvent action on the gelatine, the process becomes entirely analogous to the ordinary carbon or to Warnerke's process of seventeen or eighteen years ago.

So much for the theory of the method we have to describe. Let us now turn to its details. We have before us a transparency, perfect in all its gradations, from a clear glass sky to the deepest shadows in the sunlit landscape, which was made by exposing an ordinary collodio-bromide plate (such as is used for transparencies) in the camera, developing a negative image which was removed in three or four minutes by a 5 per cent. solution of persulphate of ammonia, and the "reversal" was then treated, after a momentary exposure to light, with the spent developer already used. The result is a transparency in every way similar to and as good as if made by contact from a negative, only it is reversed. But so far as collodion is concerned, the new agent offers no advantages over iron alum; indeed, on the score of expense, the latter is preferable.

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* *Photography*, September 8, 1898.

It is when we turn to gelatine that we discover the advantage of the persulphate, though it must be admitted at the outset that the process as applied to gelatine films is by no means as easy as with collodion; but this is entirely owing to the nature of the gelatine films themselves, and not in any way to failure on the part of the persulphate to do its duty. In explanation we need only point to the great difference in the thickness of the layer of silver bromide in a gelatine film as compared with collodion, and further point out that with many plates now on the market the fully developed image is not visible at the back of the plate before fixing. This, of course, means that beneath the silver image there is a layer of unreduced bromide which, when reduced by the second development, would simply amount to dense fog, and entirely ruin the negative. To obviate this, with such plates it would be necessary to carry the development to such an extent as to bring the image right through the film; but we question whether it would be possible to work the process successfully under those conditions, though we shall presently allude to Signor Borlinetto's ingenious device for overcoming that difficulty.

There is one other difficulty in connection with gelatine films that may be mentioned in passing, as it appears insurmountable, and might possibly lead to the condemnation of the method. It is well known that many of our commercial plates contain a considerable proportion of iodide of silver, which, however, is very little acted upon by ordinary alkaline developers, so that, however far the development is carried, or whatever means be taken, as in Borlinetto s process, to get rid of the underlying layer of unacted-on bromide, there would always be this uniform veil of iodide of silver over the whole plate. The whole success of the process hinges on the operator being able to judge exactly when to stop the first development, and there are certain possibilities in the way of "clearing" after the removal of the first image if the development should not have been carried quite far enough, with all of which the presence of the iodide seriously interferes if it does no further harm, though it may be removed after second development by repetition of the fixing. However, a plain bromide plate is the best.

Signor Borlinetto's method involves a radical departure from previous principles. Hitherto the film of unaltered bromide left behind after the removal of the first image was reduced after exposure to light through its whole thickness, hence in the case of a gelatine plate the difficulty alluded to above of getting clear shadows. The Italian professor, however, proceeds on different lines, for before removing the first image he utilizes it for the purpose of impressing a second image on the bromide that remains unreduced, and after the removal of the first image, the second one is developed to the requisite depth, and the still remaining unreduced bromide removed by fixing. In other words, after developing the first image, the plate is very thoroughly washed to remove all traces of the developer, and without the least exposure to light; the back of the plate is then protected from light, and the front, or developed side, exposed to good diffused light for a sufficient time, The existing image is next removed, still in the dark room, after which the second development takes place, followed by fixing and washing, as usual.

The weak point in Borlinetto's method lies in the solution used for the removal of the image, which consists of a weak solution of bichromate of potash and nitric acid. Most of our readers are aware of the powerful desensitizing or image-destroying character of such a solution, and it will be realized, as this is applied after the exposure for the second development has been made, that exposure, even though very prolonged, must be rather uncertain in its results. At any rate, beautiful and ingenious as the process is in theory, and perfect as the results are when the conditions are just right, it is very difficult indeed to just hit those conditions.

Now, though from its nature persulphate of ammonia may be expected to possess the same characteristics as the bichromate solution, we find in practice that it does not to anything like the same extent. Indeed, with comparative ease we have produced results upon gelatine plates almost equal to those on collodion.

The conditions to be observed are a " full " exposure in the first place, followed by an equally full development, that is to say, the development must be carried much further than for ordinary negative work. But in these respects a great deal will, as a matter of course, depend upon whether the films are thick and rich in silver, or thin and transparent. Next comes a very thorough washing, during which just as much care should be taken in protecting the plate from light as in ordinary work. Next comes the second exposure, and this is best made by placing the plate film side downwards in a printing frame without front glass or dark slide, backing it with black velvet or similar substance. Then again a full exposure—we find from thirty seconds to a couple of minutes or more to the diffused light of an ordinary room, according to the character of the image, will do—and the longer the exposure within proper bounds, the easier the after-operation and the better the results.

As to the strength of the persulphate solution, 5 per cent. is scarcely strong enough for gelatine films unless a large volume of it and much patience are used. The weaker the solution, however, the less will be the counteraction against exposure, and the less, also, the action on the gelatine. We have hitherto confined ourselves to a 10 per cent. solution, which takes about half an hour to remove the image. The second development is conducted just as for an ordinary negative, that is to say, is continued until the image is apparently dense enough, when it is washed and fixed.

We have not yet tried the effect of a very strong solution of persulphate so as to remove the gelatine as well as the silver image. No doubt with a comparatively thin film it would be possible to work in this way without the second exposure and produce an image on the " Warnerke " or carbon principle.

REVERSED NEGATIVES WITH PERSULPHATE OF AMMONIA.

By Dr. A. Miethe.

An extremely important invention was made known by Mr. Davanne in the name of Lumière Bros. at the International Congress for Applied Chemistry in Vienna, and as my tests gave very satisfactory results, I do not hesitate to publish them. A hard negative to-day is considered as good as lost. If, in consequence of under-exposure or defective development, the lights are covered too strongly and the shadows appear too weak, such a negative is generally given up by the professional photographer. Processes are, of course, in existence which permit a correction of such a negative, but they are so difficult in their execution that, even with good, practical experience, one-half of the negatives are lost by such treatment.

There is the so-called chloride silvering process, by which a negative is immersed in a chloride or bromide solution until the silver in the negative has been transformed to bromide or chloride of silver ; it is then thoroughly washed and finally developed anew. In this way the development is interrupted at the moment, when the half shadows have been completely reduced, but the lights still partly consist of chloride and bromide of silver. As a chlorizing or bromizing solution, either a mixture of muriatic acid and bichromate of potassium in aqueous solution, or of bromide of copper, are recommended. The great difficulty of the process is that it is almost impossible to catch the proper instant during the development in which the correct reduction condition has been reached, so that the picture after fixing appears either too dense and hard, or too thin. In both cases it has by the preceding chlorizing or bromizing loosened the gelatine so much and changed in spite of careful washing that an after treatment by intensifying or reducing will seldom succeed.

All these defects are remedied with absolute certainty by the new process, so that a hard negative, provided there are details in the shadows, can be saved much easier, than one which is too delicate. The process is extremely simple, and will give satisfactory results at first trial. There is also absolutely no risk for the safety of the negative. The process is as follows : The dried negative, which, of course, must be well fixed and washed, is immersed in an aqueous solution of persulphate of ammonia, and is left in the same until the high lights have become sufficiently transparent. The peculiar action of the persulphate of ammonia is difficult to explain. The inventor has attempted to explain it, but is not certain about the facts. At all events, however, he can state that the persulphate of ammonia does not dissolve the silver in the half-tones and in the delicate shadows, while it dissolves the same uniformly and rapidly in the high lights and at places where a permanent silver precipitate is present. The shadows are therefore not changed ; the high lights, on the contrary, are regularly and uniformly brightened up, whereby the silver dissolves in the persulphate of ammonia.

I have made these tests with the greatest care, confirming the fact that with this treatment the most delicate details in the shadows are completely preserved, and a corroding of the same, as with the ordinary reducer, or even an increase of transparency, does not take place. The process is astonishing, but only a practical test could convince me of the fact. The manipulation is the following: The persulphate of ammonia is applied in a 4 to 5 per cent. solution. It dissolves easily in distilled water, and the solution is absolutely durable in well-corked bottles. The dried negative—with a wet negative the action is somewhat slower—is flowed with the filtered solution under a constant shaking. After two to three minutes it commences to act, first slowly, and then more quickly, the high lights brightening up gradually, assuming first a brownish black, and then a brown tone, while the shadows do not change. The slow action of the solution accelerates with the time, so that the negative has to be taken out of the solution before it has received its proper character, the solution remaining active for a time in spite of washing.

I made experiments to destroy the persulphate of ammonia by chemical means, after it had been used, to avoid an after-action during washing, but so far without satisfactory results.

The success of this treatment is, that those parts of the negative which are too dense are reduced, while the details in the shadows are fully preserved. At longer action the stronger half-tones of the negatives will finally gradually dissolve, so that after ten to fifteen minutes an extremely thin negative, very rich in the details, will be the result, while at very prolonged action it passes sometimes into a weak positive, or it will disappear entirely.

The question, if negatives treated in this way can be intensified later on, I have not been able yet to answer definitely. It seems almost as if also by the persulphate of ammonia the film would take a character, making intensification a difficult problem later on.

All in all, the new process is of eminent importance for photography, and increases the means we possess in the after-treatment of negatives to a valuable extent.

Translated by
Henry Dietrich.

THE ARRANGEMENT OF FLOWERS.

(Concluded from page 285.)

"The stalks or stems of plants and flowers are very important items of composition, and may add to, or take from, the beauty of our picture very much ; so after placing the larger masses (the flowers and leaves), these stems should be the first consideration. They should not run straight up the center of the picture, for instance, or in straight lines across it, or from corner to corner ; these are lines of composition which I think anyone would recognize as bad ones. No arrangement of flowers and leaves, however beautiful they were in themselves, on these lines could make a beautiful picture ; in fact, absolutely straight lines are always to be avoided.

Photograph by Huttenlocher.

"I have recently seen great quantities of wild roses growing, and anything more beautiful than the curves made by their stems it is impossible to imagine.

"Subjects should be kept as simple as possible, great care being taken to have the lights and darks in the right places and the lines in the composition graceful.

"In arranging the lights of a picture there should be one or three—not two. If you have two lights the eye jumps backwards and forwards from one to the other, and the mind feels worried and uncomfortable and takes no pleasure in the picture, but one light or three lights, well placed always produce a pleasant effect.

"Leaves, as I have said, play a very important part in a composition and may supply the darks of a picture, for the darks are as necessary as the lights, and require just as careful placing. The shadows of flowers on leaves, or a dark portion of the background, may supply the "dark" of a picture.

"A boat is a splendid place from which to take photographs of flowers or plants, for nowhere are they more beautiful than on a river bank and nowhere do you stand a better chance of getting the perfectly grown, isolated plant with a broad, simple background. When you have a boat there is nothing to come between you and your subject; the wild roses and other hedge plants hang out towards you over the water clear of all surroundings, and you may even get the dark reflections in the water itself as background and the plants which grow on the water's edge are always so perfect, and the steep bank, or distant field, or distant wood, make an ideal background.

"Backgrounds seem to me to be the chief difficulty in outdoor photography, whilst in indoor work they are the least, a cloth of a suitable color hung up at some distance from our flowers being all that is necessary; and this brings me to the second part of my subject.

"The Arrangement of Cut Flowers for Indoor Photography.

"I will not attempt to tell you what colors to select as background, because you all know much better than I do what colors will reproduce well in photography. It is wise to choose a color that will come out as a medium gray, neither too dark nor too light, but about the weight of the half tones of the foliage, so that the lights and darks of the flowers and their leaves may stand out well from it, and the half tones of the foliage repeat it, thereby bringing the background color into the group and distributing the tone of the group into the background.

"In indoor photography as in outdoor, it is well to keep the composition as simple as possible, confining ourselves in groups to three kinds of flowers, at most, and in small groups to two kinds; the one flower forming the subject, and the other being of a very light and delicate character, and serving to spread the light of the flowers through the composition

"Take, for example, wild roses and wild parsley, or the plant known as bedstraw (the white kind), or cultivated roses and gypsophilæ. Sweet peas and gypsophilæ also make a charming combination. There are hosts of small flowers (mostly wild ones) which we can use in making up our groups, and we can vary them indefinitely according to our taste and the season of the year.

"In this class, as in the former class, grasses are just as useful and beautiful as the small flowers, perhaps even more so; indeed, the value of grasses in the artificial arrangement of flowers cannot be overestimated. They are so light, so graceful, so varied in color, will lend themselves easily to large or small groups, suit any and every flower, and are so easily obtainable.

"Such arrangements could be photographed as they stood in the room, with their surroundings of curtains or furniture, and very beautiful they look when taken in that way.

"In arranging cut flowers we must have something to put them in, and the choice of this receptacle is another important matter. There should be a sense of fitness in the vessel chosen. It should not be too large or too small, but just the right proportion to the flowers it is to hold, the right color and the right density. Only natural feeling and practice will teach us what is right. There are no rules for this kind of composition. The Japanese think there are, and have laid down a set of very rigid rules for the arrangement of flowers and their receptacles, which rules it is almost high treason not to believe in, but I do not think many of their arrangements are beautiful at all. The flowers seem to be quite out of proportion to the vessels that hold them—great sprays of iris, pine boughs and other heavy plants coming from the center of flat bowls.

"There is a certain beauty of line in these compositions, but they do not look natural. They seem to have been twisted and cut and trained into the forms they take, and we feel all the time we are looking at them that they will fall out of their vases.

"Tall flowers should not be put into shallow bowls, because we cannot make them stay there without crowding them together, and so destroying their beauty, and short-stemmed flowers should not be put into tall vases. It would not give us any pleasure to see a few flowers hanging on to the rim of a vase, or to see them straggling over the side. They would only vex and irritate us by their ugly lines and lack of proportion.

"If we wish to have tall flowers in a wide-mouthed vase or bowl, we may do so by putting another narrow-mouthed one inside it and filling them both with water. We can then arrange the tall flowers in the inner vase, and leaves, ferns and smaller flowers around in the wider one; so giving the comfortable appearance of growth, for cut flowers arranged indoors seem to please us better the more they retain the character of their growth.

"A good rule for proportion is to have the flowers and grasses twice the height of the vase, glass or bowl that is to hold them. I have measured up many groups since I have begun to think of this subject, and find that they are always pleasing when so proportioned.

"It is well, too, as a general rule, to have the vase or receptacle of a quiet color, and one color only. Clear glass always composes well with flowers, partly because it has so little color, and partly because it enables us to see the stalks, which are always attractive. We may get a good effect in painting or in room decoration by using color in the vase, but it must be carefully chosen. I have seen a gorgeous arrangement of scarlet poppies in a green-blue vase, and pink chrysanthemums in a purple-blue vase, and other equally startling combinations. Of course, these would not photograph well because of their color, but they would look beautiful in a room or in a picture. Unfortunately, there are many flowers and combinations of flowers which will not photograph well, owing to their color, but there are many others that will, quite enough to keep the photographer employed, and perhaps in the near future a way may be discovered of photographing any color so that it will keep its proper value. Science is making such rapid strides that it is impossible to tell what wonderful things may happen.

"The subject of flower photography is evidently a large one, and is worthy of much more careful study than has hitherto been given to it. If by reading this little paper I have induced any one to take it up more thoroughly, I shall be very pleased."

A FEW REFLECTIONS ON AMATEUR AND ARTISTIC PHOTOGRAPHY.

MR. SADAKICHI HARTMANN, in *Camera Notes* for October, speaks well for greater originality and stronger expression of personality among the amateur photographers of to-day. His remarks apply equally to the professional, and a careful study along the lines he suggests will tend to raise the standard of work in both branches of the art. He says:

"An over-production is at present noticeable in all branches of human endeavor, and at no time have the various art professions suffered from overcrowding as at present. Amateur photography, apparently accessible to every one who can press the button, and reminding one, even with the crudest handling, somewhat of pictorial art, has taken hold of the public taste to such an extent that the kodak fiend has been made into a typical figure, and has had to play his ridiculous part on the stage and in the comical magazines for years.

"Since amateur photographers are as plentiful as bicyclists, the more astonishing it seems to me that those men who really produce something artistic can be counted on the fingers of one hand.

"Of course, I am aware that the majority photograph for a pastime, merely to show that they are clever fellows and can 'also do it.'

"If that is the height of their ambition, very well; one can surely find no fault with it—we all like to amuse ourselves. But why are these men, who do not even lend it a thought as to whether they have any special gift for photography or not, so persistent in continually showing their efforts of photographing their dog, or their grandmother, or some uninteresting place they have visited, to everybody they can seize upon unawares? It may be great fun to Aunt Nell or Cousin Anne, but to an intelligent man such provincialism is not short of an affront.

"They may be satisfied with photographing up to a certain point, when the days are long and they are out for a summer holiday, but they should not try to get such things published in some professional magazine, to frame and exhibit them, and to add to the mendacity of some minor exhibition; least of all should they have any grievance against juries and successful men. They should be dignified enough to wait until some one who knows, and has the courage to be honest, tells them that photography is in their line.

"The reader may ask why amateur photography should be taken so seriously; it is only a kind of sport, not business.

"It is an old saying, 'if a thing is worth doing, it is worth doing well. Besides, it has a message to convey. Each new movement of such widespread tendencies necessarily has. Common sense, without any theoretical argument, should tell us so.

"Far be it from me to advocate that the fierce business competition of to-day should also enter amateur photography; its unmercinariness is to me its saving grace, which could make it, if handled more consistently, the best adapted medium to keep alive the artistic qualities of mankind. The possibility for such a vocation is certainly there, because of all art expressions it is the most universally liked, and, therefore, the correct one to instill with influences that would arouse live interests.

"If I were asked, 'Why does a man photograph?' I would answer: 'The average man photographs because life is so interesting to him that he would also like to show it to other people.' And of such a picture one can surely demand that it speaks to one, or conveys something. A picture should show that the man who made it got at least as far as being able to reproduce a piece of nature, or a figure subject, interesting to him, with a certain degree of originality and taste. If it doesn't do that, what is the use it? Even if he photographs his own children, one would think that it should be only a natural desire to have the likeness as artistic and picturesque as possible.

"In higher stages photography can reflect all the subleties of a man's mind; but then it is no longer a pastime, but the strenuous study of a lifetime.

"An anecdote will illustrate better what I mean than all didactic theories.

"The philosopher, Herbert Spencer, whose only exercise is playing billiards, strolled one afternoon into a public billiard-room, and promptly challenged a man he found lounging there to a game of billiards. They banked for the first shot. Mr. Spencer won and led off. When his opponent came to play, he put the chalk in his pocket and went at it in professional fashion, running out the game before he missed. Mr. Spencer walked to where his coat was hanging, and as he passed the stranger he said to him: 'Sir, I have always considered the game of billiards an innocent amusement, and a game well adapted to the recreation of a student. But, sir, when a man plays as you play it bespeaks a wasted youth. Good afternoon, sir!'

"Not everybody can be a great photographer, but while one is about the matter he should put his whole heart into it; live for nothing else for the time, unless one is contentedly narrow and has no care for others.

"Technically, I believe, there is but little cause for complaint. Most amateurs understand how to focus fairly well and are not specially harassed by the various processes of developing, printing, retouching, etc. All American photographic clubs seem to strive for technical perfection. It is their only academic rule.

"They are, perhaps, not conscientious enough, too easily satisfied. They are not willing to stand three hours during a blizzard on Fifth avenue until the right moment for a successful snapshot has come. They do not consider that out of twelve prints perhaps only one is faultless. For that only patience and perseverance are necessary, and nobody can expect to have them in such a degree, except he is truly devoted to the work he is doing.

"Clearness and correctness, which are absolute necessities in photography for scientific purposes, are by no means of the same importance in pictorial photography.

"The spectator does not examine closely to see if every blade of grass or every tuft of foliage is minutely defined; it is the appearance of the whole which touches and entrances him. The mere detail is not art; it is imitation without life, a cold mechanism deprived of its utility.

"What our amateur photographers principally lack is a cultivated taste; cultivated by reading, thinking for oneself, seeing things and acquiring a historical and contemporary knowledge of art. This belongs to the general education of every intelligent man in Europe. That is the advantage the English, French and Viennese photographers have over our men.

"That such cultivation is no superfluous baggage, one can readily see when our men attempt composition and the expression of sentiment. They stand helpless, experiment without definite aim, and at last pacify their conscience with some mawkish sentimentality that reminds one of a fashion magazine poem. The bootblack and newsboy portrait-painters have their countertypes galore among amateur photographers.

"Never listen for a moment to such nonsense, that composition is of no importance. Composition is almost everything; through a thorough understanding of it even the method of the newsboy painter can be elevated into art, as Dumont has shown in his 'Clarinet Player.'

"How can such knowledge be acquired? Advice is difficult, as good taste cannot be taught. Japan, who, with her exquisite industrial art, triumphs over the achievements of all other nations, had no art schools and no art critics until Occidental civilization introduced them. (Art critics only become necessary when the artists themselves don't know where they are at.)

"It is largely a matter of temperament. If one has the right temperament, everything that happens in one's life is grist for the mill.

"Living among dainty surroundings alone does not accomplish it; rather a hard and severe training of the eye, and no sparing of time and study in manifold directions.

"The good fates be thanked that there is not yet any gratuitous school of artistic photography. The man of originality always teaches himself, pegs away at his own salvation.

"Why does Eickemeyer succeed? Because photography is to him a science. More than in any other art, everything is calculation in photography.

"The photographers remain too much specialists. A painter, after having studied for several years here and abroad, continues to study independently. An amateur photographer, however, thinks that as soon as he has mastered the mechanism of his craft there is no room for improvement.

"In France a photographer might profit greatly by associating with artists, but here, where the social element among artists is still undeveloped and where the best ones are hermits, not much can be gained by it, especially as the artists are not willing to acknowledge the artistic side of photography.

"I would recommend the study of good works of art. Of course there is the danger of imitating certain characteristics of composition. This was all the criticism I had to make of Day's portraiture; it reminded me too much of the reproduction of modern paintings in current art journals. To make a photograph and lend it a certain originality by cutting away certain parts and giving it an odd shape is not strictly legitimate. The method of work should always be as simple and direct as possible.

"Retouching, in my opinion, should be entirely abolished. To retouch successfully the photographer must be a draughtsman, and that can hardly be expected from him. Besides, very little is gained by making a photograph look as if it were done in some monochrome art process. As soon as it resembles an etching or a wash drawing it outsteps its true vocation and challenges comparisons, which will hardly be to its advantage. The scope of photographic reproduction is large enough without using other mediums of expression as helpmates.

"You may ask, what is going to be done with all these artistic photographs? There is no danger that there will ever be too many, besides there is room enough for good works.

"I know how many square acres of interior walls are still bare, or hung with maudlin absurdities, on the east side and Harlem flats. Make war on pot-boiler art. As the painters fail to raise the standard of art among the middle class by asking unreasonable prices for mediocre work, give them photographs of a broad human interest, make only a few prints of each successful picture, frame them artistically and sell them at democratic prices that are within the reach of all. There are many others besides me who would rather have Breese's 'Yvette Guilbert,' a landscape by Eickemeyer, a decorative study of Day, or a night scene of Frazer, on their walls than a worthless daubing in oil or water-color encased in a golden frame 2 feet deep.

"There is also much room for improvement among the professional portrait photographers; they should be entirely replaced by amateur photography, which is always—I must pay it that compliment—no matter however unsatisfactory at times, vastly superior to their smiling, touched-up atrocities. The daguerreotype era should be nearly over by this time. We want more Coxes, Breeses and Hollingers.

"Also, in illustration, photography could play an important rôle. It has already found an opening in newspaper illustration, why not also in magazine and book illustration of a superior order? It would surely not be very difficult to surpass the efforts of the designers employed by the magazine publishers. I am convinced that a photographic illustration company, capable of issuing conscientious artistic work for the illustration of novels and poems, would prove successful after a few years of hard work.

"Yet, before I do any more prophesying, let some amateur photographers first follow my advice and cease throwing their maudlin efforts broadcast upon an indulgent world."

VIOLATING THE FITNESS OF THINGS.*

By J. Rees.

ONE need not go far nor do much in the way of searching, to find proof ample, in the shape of photographs and their reproductions—of the frequent—the common, indeed—violation of the natural and the fit.

Here for instance, in a current magazine is a railway article, one of the illustrations in which is the photograph of an express train, taken while it was traveling at the rate of 50 or 60 miles an hour. As an example of instantaneous work it is very good, still it grates upon our sense of truth, in that no eye could possibly have seen the clear detail shown, under the conditions of taking. It should have been taken with the train about to start, or if that were impracticable owing to insufficient light or any other cause, blocked in the open by a signal set against it. Whether a due and artistic suggestion of the motion could be given by photography is doubtful. Let men anxious to pioneer, try; but if out of the question in an artistic way, far better let it be, as beyond or outside of the special powers of the camera. As a dry recorder of fact, the camera, admittedly, can be made of first use and importance in the direction of showing arrested action; would be of great value in illustrating such features as strokes in golf, positions in batting, bowling and fielding, in cricket, and so on; but this is a different matter altogether, in there being no attempt at anything pictorial or artistic, and in the particular, one, special point aimed at, being successfully accomplished; which was not the case in the train illustration, of showing rapid motion.

To the photographer, knowing the difficulties conquered, the picture referred to might appeal and bring out an expression of admiration; but it must not be forgotten that the great mass of people at large will not look upon it from such a narrow point of view, and knowing nothing of the technical difficulties, are not to be led by any one such issue into admiration, but looking upon it as a whole, express their opinion, favorable or otherwise, upon the broader ground as to whether everything about it is in keeping and character. To satisfy this should be the higher aim, and results to fulfil the requirement must have something of the architect's design about them, as well as the builder's particular work; or otherwise we stand the chance of having, as it were, a Norman doorway and Gothic windows in the same building, a Gothic front crowned by Byzantine domes, or some other untoward feature introduced that grates more or less upon our sense of the fit. The pity of it is, that so much excellent work is wasted so often upon a wrong design, or without a design at all. Such a style of working we regard in the ordinary affairs of life as decidedly foolish and common sense should dictate the introdution of the same feeling into photographic directions; indeed, in the main, success is far more dependent upon the exercise of this same common sense, than upon being well posted up in the special laws and rules of art.

Here is a bit of landscape for instance, that we have seen many a time before, but which never appealed so closely to us as to-day, and the cause of which appeal must be some particular light-filtering or modifying quality in kind and amount of cloud. Does it not stand to reason that, if we wish to experience the same feelings of pleasure in looking at the picture determined upon as we do at the reality, the important factor of sky should have its fair share in it? Yet how rarely, by comparison, is this thought of and, when thought of, instead of the obvious and common-sense plan of immediately exposing a second plate upon the sky, and using that, we must needs introduce our own stock skies, must enter into competition with Nature in building clouds, and matching them with earthly shadows, and are surprised that the result is not quite the thing, or worse, have the ineffable assurance to feel pleased and satisfied with it!

"Sunset effects," with the sun evidently some time off setting, and moonlight ones without a moon at all, though less common are equally deplorable, and however carefully built up and doctored, have an inherent air of unreality about them that readily brands them as bastard productions, and gives rise to dissatisfaction.

***British Journal of Photography.*

Are not our lanes, landscapes and country bits, again, so very desolate-looking in the absence of life in them, or worse than desolate in the introduced and carefully arranged life? The country is quiet, but not lifeless; there is some amount of life traveling along the quietest lanes, and it is a suggestion of its particular kind, that should be given to complete the picture and satisfy the mind, or it comes to a kind of unconscious conclusion of the unfitness of things, in that it is a useless road or lane, in not being used at all. No one, probably, would go so far wrong as to introduce a town dweller, in gloves, cuffs, frock coat and top hat, chaffing a milkmaid, into a rural scene; but worse is oftentimes done in bringing in a rustic trying to look at his ease doing nothing, or over-consciously doing what he has been directed to do.

It isn't a matter for deliberate arranging so much as persistent watching for the favorable chance and although tedious work, when we do catch the timber wain coming round the turn, or the cows filing in through the gate for evening milking, we are repaid for it, for the picture has now the spark of life in it, a natural, everyday life, and not the Frankenstein carefully composed and arranged one.

The same thing applies in town as well as country. We see the fine old church shown with closed doors, or with open doors but no one in or going in; or the town hall, the center of the town life, the corporate soul if a corporation have a soul, and which we associate naturally with the bustle of council, court and assize, is represented with but one or two individuals about. It's all very well, taking it at its easiest, but what is the use if the suggestion of the centered interest of the town be absent? Why cannot we get the living value? Surely plates are rapid enough and the true opportunity, in view of the added interest of the result, well worth a little thinking over and waiting for!

Finally, with regard to figures and portraits, where it is easiest of all to violate the fitness of things, or where, perhaps its detection is easiest, for a mistake or a slight exaggeration in a face or pose is so very evident to all; and no less marked than the ease with which such a blemish can be detected is the feeling of satisfaction felt in finding it—a result, possibly, of the Calvinist's "Old Adam" and "fall from grace" in us. We cannot help it, I suppose, and the best thing that can be done is to give a first place to persistent thought in keeping out as much unfitness as possible.

Supreme naturalness is without doubt the keynote of successful portraiture, but impossible of attainment in the majority of cases, owing to self-consciousness and the fatal desire to look as well as possible—or a little better. The piquant smile turns into a simper on the young girl's face; his worship the mayor's air of dignity is apt to show in a touch of woodenness its assumption for the occasion; while the young man in the glasses next to him would probably look more intellectual had he made a little less effort to appear so. This to a degree we must accept as inevitable, although a good photographer, by his manner, knowledge of human nature and non-interference with natural pose, can greatly minimize it; but it should be within the reach of all not to show us old people without wrinkles, smug cheeks and pug noses classically lighted, and faces generally showing the evident marks of maximum amount of retouching. There is often quite as much in attention to minor matters of accessories. They are all very well in the right place, but all so very wrong in others, that they may be the cause of an unfavorable feeling against a picture otherwise good. That old gentleman for instance only too clearly shows in his face that he is trying to read an album, even if we could not guess it to be one by its appearance. Why not have given him a book in a paragraph of which he might have half lost consciousness, to the unspeakable gain of the picture? The stout and motherly woman again how can we possibly conceive of her as natural, posed by the side of that palm? If we cannot introduce a crumb-brush or a feather-duster instead, why, let accessories go altogether, for it is far better to have none at all than false ones.

It is clearly, again, a question of common sense and a little thinking; and, although the professional as the one chiefly interested, with bread and cheese to find for himself, wife and children, can hardly be expected to go in for trying many experiments, yet he may in portraying a well-known man in a natural and easy position in place of the conventional one which is decidedly neither one nor the other, turn out work that judiciously displayed, would mean a step or two up the ladder of pre-eminence in a town, and the equally important and satisfactory lifting of prices to a wider and higher range of customers.

THE ENAMEL SOLUTION.

IN an article recently published in *Process Work and the Printer*, W. G. makes some valuable suggestions, which process workers in this country will duly appreciate. He says, in part:

"We are often asked to give 'the formula you prefer yourself,' and when we have given it we are just as frequently told: 'It is the same, or almost the same, as I've been using, but I can't get on with it.' Even when we have detailed the method of manipulation there are some who cannot help going wrong. Why they do so, no one can ever make out. It is, like the vagaries of human nature, quite unaccountable. It is, however, but another proof of the truism that practice makes perfection, and there is certainly no process which requires more persistent 'pegging away' at than the enamel process. It is no good sitting down after a few failures and writing to the editor of your trade journal that you believe the formula must be wrong, and asking for another. Granted that the formula has been obtained from a reliable source, there is more chance of success if the worker will implicitly put his faith in the formula being right and himself wrong. The difference between one enamel formula and another is very slight, when they are quantitatively compared. In choosing a formula, where choice is offered, we should always take the simplest, and with the fewest ingredients.

"There are many formulas given which contain half a dozen or more different ingredients; and it seems to be overlooked that fish glue and bichromate of themselves will yield a very good result. A worker who constantly used himself to this simple solution might easily do good work, and wish for no better formula. If Le Page's clarified glue is diluted with an equal quantity of water in which is dissolved 10 grains of bichromate of ammonia for each ounce of the total quantity of solution, a very good film is secured. The difficulties that will arise will be differences in the fluidity and solubility of the glue, occasional acidity, and oily scum. The difference in fluidity may be made right by always testing with Beaumé's hydrometer, or even an argentometer. It does not really matter what is used as the float, so long as one is consistent and always uses the same thing at about the same temperature. The extra solubility of the glue may have to be corrected by increasing the quantity of bichromate, giving rather longer exposure, and more delicate handling in development. Acidity can be corrected by neutralizing with ammonia, which should, of course, be well stirred in, after the water is added to the glue. The oily scum can be got rid of by allowing the glue to stand in a wide-mouthed vessel, when the oiliness will come to the surface, and can be skimmed off with a piece of card. The great mistake made in handling fish glue solutions is in using them too soon after being made. They should be allowed to stand from twelve to twenty-four hours, at least, to give them an opportunity of displaying their peculiarities. Then we can begin to test them for the faults referred to above, and remedy them. Besides, a good point gained by allowing the solution to stand, is that the sediment falls to the bottom, and the top solution can be poured off much clearer than it could be obtained by filtering. Too much of the latter seems to rob the solution of its goodness. Tall glass jars, such as are used for testing perchloride of iron solution, are excellent for allowing fish glue solutions to stand in. A piece of cotton cloth, or two or three folds of muslin tied over the mouth, is the only covering needed, this being to keep the dust out.

"With such a simple solution as we have described we have secured perfectly good results; but there are some points to be noted in using such a solution. In the first place, it is essential that the degree of fluidity which will give a suitable coating must be found. We have given equal quantities of glue and water, but it may happen that the glue runs rather more fluid at one time than another—for instance, in summer time—and in such case the quantity of water must be decreased. It is better, in making the glue, not to add the full quantity of water, but to increase if the hydrometer test shows it to be necessary. After a little experience the worker will soon know when the film is of the right thickness; but in any case the 'burning-in' will soon prove it, for if the film is too thin it will be impossible to attain the dark-brown color which distinguishes a perfect print. This simple glue and bichromate film requires a clear negative with sharply defined dots, well joined up in the high-lights and good, dense dots in the shadows. The exposure must be well-timed, and the washing-out, or development, carefully done, as the film is somewhat tender, and will not stand a strong rose spray upon it. It is essential, however, that the washing-out should be continued until the bare metal shows through between the dots. This is a part which many beginners neglect, because their eyes are not experienced enough to notice the difference between the bare metal and the same with a thin film of glue over it. By staining the film with aniline violet dye, and using a magnifier, it ought to be quite possible to see when the dots are clear. It is no good proceeding to burn in unless they are.

"After the washing out, the film should be dried off with fresh methylated spirit, which should be poured on the plate at one end and allowed to drain down. In this way the spirit seems to push the water in front of it. This is a more effective way of drying than using a dish, which not only necessitates more spirit, but also is apt to cause tear-markings. It is sometimes asked whether it is really a necessity to dry off a plate with spirit. We think it is, as the dots of wet glue have a tendency to creep together in drying the image spontaneously, and a plate which may have appeared developed clean seems to have all run together when dry. Moreover, a film that has not been dried with spirit may still contain some moisture, which gives trouble in the subsequent baking by condensing between the film and plate, and ultimately destroying adherence."

LICHTDRUCK FROM ORDINARY GELATINE DRY PLATES.

By Dr. Liesegang.

DR. LIESEGANG deserves the credit for a very simple, and, as it appears, very useful method, for the production of a lichtdruck from an ordinary negative gelatine plate. The plates used for this purpose are coated with the ordinary bromide of silver gelatine emulsion, but the glass must be plate glass, so as to subsequently stand the pressure of the printing press without breaking.

The process is as follows:

The ordinary dry plate is exposed behind the negative in a printing frame or enlarging apparatus in exactly the same way as would be done for the production of a diapositive, and is then developed in the following developer: Dissolve 10 grams carbonate of soda in 200 cubic centimeters of water, and add to this developing quantity shortly before use 0.5 gram pyrogallic acid. After development, the plate is fixed, thoroughly washed, and placed in an etching fluid consisting of 250 parts of nitrate of calcium, dissolved in 500 parts of water. After half an hour's action, which is sufficient, the superfluous moisture is removed in the well-known way, and the roller is applied on the plate. To print, the plate is laid upon two to three sheets blotting paper, which have been moistened, and then upon a thick plate glass. After thorough rolling, the printing paper is laid on the plate, and upon this a sheet of Para rubber of about 4 millimeters thickness, and all is then put into a printing press and subjected to strong pressure. The paper is then taken off and rolling and printing is continued, until after some time a new etching of the plate with the calcium nitrate solution is deemed necessary. Inexperienced operators do better to use a gelatine roller, not too fresh and tanned with a solution of chrome alum or tannin, in place of the lithographic leather roller, which is more difficult to handle. The ordinary lichtdruck ink serves as color, which is diluted with a little lithographic varnish. To prevent a peeling off of the gelatine film from the glass plate during printing, 3 millimeters of the edges may be coated with collodion or a water-proof varnish.

Translated by
Henry Dietrich.

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Photograph by H. D. Blauvelt.

"WHO SAID WATERMELON?"

ANTHONY'S

Photographic Bulletin.

EDITORS:

Prof. CHARLES F. CHANDLER, Ph.D., LL.D.
W. I. SCANDLIN.

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THE IMPORTANCE OF STUDY.

WITH the advent of the long evenings and the accompanying curtailment of daylight necessary for gallery work comes an opportunity to add to one's stock in trade an item that will mean an increase of profits from the business of next year, if properly made use of and applied. A careful study of the best professional work exhibited during the last few years will show that most of it, and certainly the best of it, bears unmistakable evidence of more or less familiarity on the part of its makers with the work of the old masters and the best art studies of the world, and this knowledge of the principles of art, as they are exemplified in the work of the old portraitists, is in no danger of becoming a back number or a drug on the market. Those who are most familiar with the best work of the masters, and can best apply the principles of lighting and composition to their own portrait work, are the successful men of to-day, and will continue to be so while art exists. By this it is not intended that we should copy the poses, or try to reproduce with the material that comes to our hands the pictures that they painted. It does mean, however, that the photographer should master the principles on which they worked, make himself thoroughly acquainted with their methods of treatment of different models, and become conversant with the styles of the several schools of art which have flourished at different periods of the world's history. Books and illustrations are easily obtained which will enable one to perform this task, and the performing will be a pleasure in itself; too many of us have been content to wait for the inspiration to come in with the sitter, and, failing it, to go on in the same style as the last, and the last before the last. We photographers need to absorb more of the literature of art that has made history, and it can only be done by careful study. Do

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any of us think for a moment that such beautiful things as were hung at the last Convention by Pirie MacDonald, that exquisite child study of Dinturff's, and that other by Schumacher, or "Toil," by Tingley, and a number of others that ranked very high, whether awarded prizes or not, were achieved without study? Never! And it is probable that this study was of just the same kind that is possible to ninety-nine out of every hundred of us all. A systematic course of reading, and an intelligent method of thinking and applying one's reading, will work wonders, and the man who undertakes it will astonish himself by the improvement in his work in six months. Is it said that work made on these lines is only fit for exhibition purposes, and is not adapted to my trade? This emphatically is not so. The old paintings were preserved, and have become precious to us, because they embody the elements of art and talk to people's souls through their visual organs, and it is being demonstrated that photography has a certain amount of power to do the same thing to-day, but as it must be handled with technical skill to reproduce the image set before it, so must that image be posed and lighted with an artistic skill that must be cultivated to the highest possible degree.

We believe that the next annual Convention will demonstrate that the fraternity is waking up to a realization of this need of study, and that a distinct forward step will be achieved in the application of the principles of art to our every-day studio work. Let every photographer who reads this article ask himself this question: Am *I* to be a gainer in this field?

THE FILM QUESTION AGAIN.

IN our last issue we published a notice of a patent granted to Rev. Hannibal Goodwin on September 13, 1898, for a photographic pellicle or film, and process of producing same, and remarked that it seemed likely that developments of a very interesting nature to the photographic profession might shortly be looked for in regard to the ownership of the patent rights under which photographic films have been manufactured since their invention in 1887.

Since then we have received a newspaper containing an interview with Mr. Eastman in reference to Mr. Goodwin's patent, in the course of which Mr. Eastman says that the interference was decided in favor of the Eastman Company, and that there can be no controversy on this point, which the patent records will show, and that it was in the Eastman Company's favor, because the Commissioner of Patents, to whom the case was appealed, found that Mr. Goodwin's application did not claim or state the subject-matter claimed by the Eastman Kodak Company prior to the application for their patent.

As this seems to be diametrically opposite to Mr. Goodwin's view of the matter, it looks as if our prediction that there would be litigation over the matter is likely to come true.

Items of Interest

THE recent exhibition of photographs at the National Academy of Design, held during the week ending October 8th, under the auspices of the Photographic Section of the American Institute, was the means of drawing together a very large collection of photographs, the work of both professionals and amateurs, from all sections of the country. The quality of the work exhibited was high, and naturally so, from the fact that no restrictions were placed by the Committee as to hanging of pictures which had previously received prizes in other exhibitions. The natural result was that a large number of prints shown were familiar, and many of them even well known. The tendency, in viewing such a collection, is to underrate the value of the newer work, which, as a consequence, is apt to suffer from the prejudice, no matter how little it may be intended.

* * *

We notice that the Photographic Society of Philadelphia, at its first stated meeting of the season, adopted resolutions protesting against the proposition, under consideration by the management of the Paris Exposition of 1900, to sell the exclusive photographic right of the Exposition to one firm. The Society believes that such a policy would tend to mar the pleasure of the visiting photographers, and, therefore, take this early step to inaugurate a movement against it. French photographic papers and foreign societies are already entering their protests in the matter.

* * *

The members of the Brooklyn Institute Department of Photography have laid out a very interesting programme of practical conferences, meetings and lectures for the coming year, which was opened on the evening of October 6th with a members' exhibition of lantern slides. Following this come illustrated lectures on "Old Brooklyn," by William H. Coughlin; Pictorial Photography, by President of the New York Camera Club, William D. Murphy, and a number of very interesting talks, including one in March, by H. Snowden Ward, President of the Royal Photographic Society of Great Britain, on "The Real Dickens' Land." The Annual Photographic Exhibition of the Department will be held from April 22d to May 6th, in the gallery of the Brooklyn Art Association.

* * *

The Springfield Camera Club has just closed its annual exhibition, which included five classes, the display in each of which was large and interesting. The club is in excellent condition, and is planning for a hard winter's work.

The Photographers' Association of Kansas, at its late convention, selected Topeka as the place of meeting for next year, and elected the following officers: President, L. F. Woolf; First Vice-President, J. E. Hahn; Second Vice-President, Sam. Hirst; Secretary, J. J. Pennell, Junction City; Treasurer, E. M. Glazen, Lyons.

◆

A new camera club has been formed in Galesburg, Ill., with the following officers: President, C. H. Osgood; Vice-President, F. E. Augerson; Secretary, Miss Minnie Holmes; Treasurer, Rev. G. K. Stark; and another in Bloomington, Ill., with the following officers: President, Dr. H. A. Potts; Vice-President, W. E. Rayburn; Secretary, Miss Kinmler; Treasurer, Chas. Limeler.

◆

The Toronto Camera Club announce their Eighth Annual Exhibition, to be held from December 6th to 10th, inclusive, entries for which must be made to the Secretary not later than November 26th. Several open classes are announced, in which medals will be given, full particulars of which can be obtained by addressing the Secretary, John J. Woolnough, 94 McPherson avenue, Toronto.

◆

At a special meeting of the officers of the Photographers' Association of Michigan, held in Grand Rapids on the 12th of August, Mr. F. C. Fryett was appointed Secretary of the Association, to take the place of C. E. Heath, resigned.

◆

The Second Annual International Salon and Exhibition of the Pittsburgh Amateur Photographers' Society is announced to take place at the Carnegie Art Galleries, Pittsburgh, February 1st to 20th, 1899. As before, there will be three separate and distinct divisions for exhibits, the salon, the general exhibition, and the exhibition or division open only to members. Both the first and second divisions will be open to all artistic workers throughout the country. Full information, with blanks for entry in either of the different divisions, can be obtained of the Secretary, Mr. Jos. H. Hunter, 520 Green street, Pittsburgh, Pa.

◆

The Bulletin would return its thanks for invitations duly received to the Sixth Annual Exhibition of the Photographic Salon at Dudley Gallery, Egyptian Hall, Piccadilly, London, and also to the exhibition of the Photographic Society of Philadelphia, at the opening of its salon, October 22d. In both cases distance prevented our acceptance.

◆

A combination of borax and ammonia mixed in water is recommended as a capital medium for restoring aluminum which has become dull or gray.

◆

"The most unkindest cut of all" is that attributed to the brother of Sir Edwin Landseer, who described photography as "the foe-tographic art."

It is reported that M. Mercier, of Paris, the well-known chemist and photographic expert, after a long series of experiments with various substances, has discovered a remedy for over-exposure, which is said to make possible the production of an excellent negative, even with an exposure one thousand times too long under ordinary operations. He obtains this result by soaking the plate in a 2 per cent. solution of tartrate antimony and potash, which is commonly known as tartar emetic. The plate, after being subjected to this soaking, may be exposed and developed, or the treatment with the tartar emetic may be after exposure and before development. The best results thus far obtained have been with hydrochinone developer. If this treatment is found to be as it is claimed, it opens up a wide possibility of improvement in the work of the ordinary amateur, who, on the theory above named, may expose almost indefinitely, give his plates a preliminary soaking in this bath, and develop with the surety of a perfect negative. We wait the outcome of further experiments with interest.

◆

We have learned from one or two sources that reports are in circulation that the Reichenbach, Morey & Will Company, manufacturers of Vera, Vera Matte and Victor, had gone out of business, and the only foundation for such a report must lie in a confusion of the "R. M. & W." Company with the Photo Materials Company, of Rochester, with whom Mr. H. M. Reichenbach was formerly connected. The Eastman Kodak Company recently purchased the plant and equipment of the Photo Materials Company, and a lack of proper understanding of the facts may have led to the above. The Reichenbach, Morey & Will Company are sending out more of their products than ever, and nothing is farther from their intentions than going out of business.

LIGHT-SENSITIVE COMPOUNDS.

By Carleton Ellis.

In the course of some experimental work with a number of dyestuffs certain reagents were observed to decolorize the dye when exposed to sunlight. This was noticeably the case with methylene blue in combination with certain organic acids, *e. g.*, tartaric, succinic, and especially oxalic.

Paper coated with a concentrated aqueous solution of the latter acid, to which a small quantity of methylene blue had been added, bleached rapidly in direct sunlight. In this way it was possible to obtain positives from positives, and, as the exposures were made under drawings, blue lines on a white ground were produced. Cloth coated with this solution likewise printed rapidly.

Another combination, which was somewhat light-sensitive, was a solution of sodium hydroxide colored with methyl violet. The violet color disappeared gradually on exposure to light, and the resulting prints showed violet lines on a white ground.

Washing with water removed the free caustic soda, and served to fix the print. Simple washing in water was not possible with methylene blue, as the white ground acquired a blue color on wetting, due, no doubt, to the oxidation of the reduced portions of the dye.

COMPOSITE GROUPS.

By Ernst Kempke.

BY this designation I mean such groups, as are not taken at one time, but require the results of several sittings, to be afterwards united to one picture. Every photographer has undoubtedly met with the disagreeable experience of having a number of persons assemble in his studio for the purpose of getting a group picture taken, and being obliged to wait with increasing impatience the arrival of one or more missing ones. Finally the group had to be taken, after all, because some of those present could not wait any longer. The missing ones arrive later on, and desire to be included in the picture. At another time a committee of some club, society or corporation comes to make arrangements for a group picture, but remarks, that it will be impossible for all persons who are to be in the picture, to be in attendance on the same day. It is also sometimes desired to have persons in the picture, of whom no original sitting can be made, and a picture of whom is only to be had. Finally an illustrated paper may, perhaps, make the request to unite a certain number of photographs or pictures into one suitable group. In all such cases, and under sometimes very difficult conditions, the photographer has to be guided by his own experience, to surmount the obstacles, and must endeavor to create, even from piece work, a picture which is true to nature.

Orders of this kind are the most difficult in the photographic profession, on account of the varied conditions under which the technical part has to proceed. For instance, to-day being very fine and bright weather, some persons come at various times of the day; others to-morrow, on a foggy and rainy day, and still all are to be equally sharp on the picture, and to have a uniform illumination. I will try in the following to classify my experiences, partly from the words of first-class artists, and partly from my own observations, into short rules.

The easiest way to add one or more persons to a group is always, when it is known to us beforehand, that they are to be on the picture. Such figures are either pasted directly to a suitable place in the picture, and the outlines or edges are covered as much as possible by retouching and burnishing, or the missing persons are printed in. This is done in the following way: First, make an untoned and unfixed print upon a larger piece of paper, cut the figure carefully out (mask) so that it will fit to the place for printing in, and fasten with a little wax to the film side of the group-negative. This place will remain white during all further printing. The rest of the paper from which the figure was cut is fastened to the negative, so that no light will touch the plate, except that part, reserved for printing in the figure. The negative containing the figure has, of course, to be placed very carefully upon the remaining white part of the group negative, so as to fit exactly. But, even with the utmost skill, lines around the edges can hardly be avoided by this method.

Another method is to place a piece of white cardboard at the proper place, when taking the group. Thus the white place is obtained at once in the print, on which, later on, the figure can be printed in. Such white cartoons can be placed upon an easel surrounded with drapery, so that it looks like a picture on an easel of the missing person in the space filled by the group.

The writer has oftentimes put a white sheet of cardboard into an empty picture-frame, and fastened the same with a thin wire to the background, so that it had the appearance, as if the picture of the person printed on the white space hung on the wall. The latter two methods have given to the writer good results with natural effect, particularly, if a picture only was obtainable of the missing person.

If two or three persons are missing, the method of the simple pasting or printing in might be too difficult to produce good pictures, particularly, if a larger number is required. It is therefore best, to make a picture in the above-described manner, and reproduce the same.

For originals intended for reproduction, a matt paper is the most suitable. The old style salted paper, as well as platinotype and carbon papers, are very suitable. Glossy paper is not good. Pretty black-toned pictures on matt aristo paper are excellently suitable. It is of importance, to have the cut edges as sharp and clean as possible, as white lines in a dark surrounding will always appear thicker than they are in reality.

Such pictures are oftentimes cut out with a pair of scissors. The writer has, however, obtained better results with a sharp knife, placing the prints to be cut out upon a sheet of solid cardboard. A glass or zinc plate is also very good, but the knife will suffer more.

It may hardly be necessary to call attention to the fact that the outlines of the persons have to be cut with the greatest care, so that not half an ear is missing, or that hands or feet are crippled. It is recommended, to subject all the plates required for the composite group, to a thorough comparison regarding their printing capacity, before they pass into the hands of the retoucher, and to bring them to a most uniform density by intensification, reduction, etc., because on the uniformity of the plates depends the harmonic effect of the picture. For salted paper the plates have to be very rich in contrast, if the prints are to be clear. It is also of advantage, if all prints can be made, toned and fixed on the same day, so as to have a uniform tone in all. The fixed and well-washed prints are dried between clean blotting-paper, and are only cut out after being thoroughly dry.

After this has been done, the several groups and figures are arranged, as they are to be after pasting on, the outlines are marked faintly with a lead pencil, so that any changes may be made with the still dry prints, then they are moistened and the prints are pasted on. After thorough drying, the edges are worked over and shadows are made. It is recommended to fasten the cardboard with the group background beforehand to a drawing-board or a stretcher, to prevent the sheet from being curled by mounting. The stronger the cardboard, the more suitable for such purpose.

Backgrounds are generally painted in distemper color, sometimes also in crayon. A good decorative effect is of great advantage to the reproduction. The principal color tones for backgrounds are sepia, neutral tint and black in their different gradations.

Regarding the artistic side of such pictures, the most genial artist frequently has his hands tied and cannot pose as his artistic taste dictates. Many persons refuse to be taken in profile; others want to stand or sit next to a certain person; others, again, do not care about taking the pose assigned to them.

Still a certain governing motive should accompany every picture if it is to have the least artistic value.

It is clear that the artist can produce only a certain scenery according to time and situation ; a military field scene, for instance, can only be used in the open air.

The illumination must conform to reality. Nothing is more wrong and out of taste than to have, for instance, two figures whose shadow sides oppose each other. Another very important point to be considered is in the correct application of the perspective. It is very wrong to have all figures in the foreground of the same size, as those in the background. For groups, whose scenery is in the open air, there is no need of so much difference in the perspective—that is, there is no necessity of the more distant persons being much smaller than those nearer by, if the place from which the exposure was made is not too near the group. The soldiers of a company, which, for instance, was taken at a distance of 100 meters, aerial line, marching towards the observer will not look much smaller in the rear rank than those in the front rank, but if another exposure is made after the company has come to within 10 meters of the apparatus, we will have giants in front and dwarfs in the rear rank. If the position of the camera was low, the front figures would partly cover those in the rear. One has therefore to be careful, in taking groups with many persons, to select a proper place of exposure.

It is preferable for large groups, to have those in the rear take a more elevated position—on a staircase, terrace, etc. This is certainly the most advantageous, if the character of the place where the picture is taken, will admit it. The distance, or the background in the picture, should always be held soft and in delicate tones. Shadow and light must be, of course, in contrast, the nearer the persons are to the scenery. By skillful distribution of light and shadow the artistic effect of the group can be considerably increased. The perspective is also of great influence. Generally, the oblique perspective is more graceful than the straight perspective. The latter is rather stiff and too regular in the arrangement.

Our architects nowadays prefer curved lines to straight lines in street scenery, asserting that the former is more pleasing to the eye.

All those occupied principally in taking groups should study the works of old masters like Raphael, Leonardo da Vinci and Rubens, and they will be greatly benefited with regard to pose, illumination of the several persons as well as full groups, the vivacity of guiding lines and the general effect. Translated by

HENRY DIETRICH.

RESTRAINERS IN THE DEVELOPER.

By W. de W. A. in *Photography.*

WE remember that when hydrokinone as a developer was discovered by ourself one of the chief charms it had was the fact that it could be employed without restrainer for the purposers of development, and still gave clean pictures. This non-employment of bromide seemed to proclaim its superiority to pyrogallic acid, always supposing that the alkaline bromide did not actually form a combination (chemical) with the pyrogallic acid. This assumption was made somewhat for the following reasons: Pyrogallic acid without restrainer reduces the bromide of silver more or less all over the gelatine plate. With a certain quantity of bromide the reduction is confined to those parts which have been more or less acted upon by light. It follows, therefore, that the non-reduction is caused by the alkaline bromide devoting itself to a combination with the non-attacked silver salt, and as only a minute portion of the silver salt is affected by the action of light, it follows that not only has the developer to reduce this small portion, but afterwards it has to disengage the protecting particle of alkaline bromide from the silver bromide which is next the silver already reduced, but it has also to reduce the particle of unacted-upon bromide of silver. This reasoning breaks down, however, if we assume that the small particle of silver bromide in contact with that which is first reduced remains chemically the same. We have to make a further assumption, and one which we have demonstrated has a very large probability, viz., that the silver bromide in contact with the reduced silver is altered chemically. It appears that as soon as the molecules of silver bromide altered by light are reduced to silver, this silver itself goes into combination with the bromide and forms fresh sub-bromide, which is immediately attackable by the developer—the bromide restrainer still protecting from reduction those molecules which are not in contact with the freshly reduced silver. The image is thus built up by the formation of fresh sub-bromide produced chemically, and not by the action of light. When hydrokinone was discovered, the same theory of development was applied to it, but it was apparent that the reducing power of the hydrokinone was only felt by those molecules of silver bromide which had been altered by light in the first instance, and had no tendency to separate the bromine from the silver in the molecules, which had not been shaken by light, even though no alkaline bromide was present. It was found that a very small proportion of bromide of potassium, or other alkali added to the hydrokinone, almost stopped all action of development, and the anticipation was that the protective action was extended to all molecules alike, whether altered or not. It must be recollected that the discovery was made in the days when gelatine plates were not so extremely rapid as they are now, and that there was more inertia in the groups of molecules acted upon, and which had to be overcome by the developer than there is in the present plates. The presence of a small—very small—quantity of the restrainer is now needful to prevent the molecules of unaltered bromide which are in a state of indifferent equilibrium from being attacked. It can be quite understood that when the developer reduces both the molecules acted upon by light and those which are not, it performs more work on the latter than on the former. In the one, two atoms of bromine have to be removed from two atoms of silver, supposing the bromide of silver to be so composed, and in the other only one atom of bromine has to be removed. A developer, if perfect, should have power to remove the one atom, while it should have insufficient power to remove the two. A man may be unable to move two heavy coupled railway carriages along a line, and yet might just move one. In the pyrogallic acid developer, minus bromide of an alkali, both can be removed, but with some difficulty, whereas one is easily removed; hence with such a developer we have an image lying in a plane of fog.

With some plates the pyro was only capable of removing one bromine atom. It would appear at first sight that the pyrogallic acid must be the more powerful developer, but theoretically it is not the case, for hydrokinone is a more powerful absorbent of oxygen than pyrogallic acid, and it was this property that led to its trial—and with success. At first it was tried with an alkaline bromide added, and the theoretical promise that it gave was belied, for the image came out very slowly.

As the doses of the restrainer were reduced, the image became more quickly visible and gained in strength till when it was omitted altogether it seemed to beat its then solitary competitor pyro. There are many who still hold that hydrokinone is the best developer, and who no doubt would be astonished if it were used without a small quantity of restrainer. It may be that the preparation is better than it was, for at the time of its trial this chemical was extremely rare, and cost about 10 shillings for 60 grains. It was anything but the pure white we are accustomed to now, and every experiment was an expensive one. It may be that the brown salt itself contained some kind of restrainer; be that as it may, up to the present day it requires less than pyrogallic acid.

Various developers have since then been brought out, most if not all of which at first have been recommended as needing no restrainer. There is no doubt that with slow plates, and with quick plates in which the gelatine is in excess, no restrainer is needed. In the last we have the gelatine itself acting as a mechanical restrainer—a kind of restrainer to which old workers in collodion dry plates were well accustomed, as they were to the albumen restrainer. In those almost prehistoric days, it was no uncommon thing to use an alkaline developer without any bromide when these colloids were used to "preserve" the plates. Strong ammonia, and a large dose of pyrogallic acid, could be applied, and an image developed on a pure bromide of silver plate without any iodide being present. Without the presence of gelatine or albumen, such an application would have meant a hopelessly fogged image, or, probably, no trace of an image upon the fog. It appears, then, that before any developer may be said to be perfect (that is, that it will only attack that part of the silver salt which has been acted upon by light), it should be tested on a collodion plate, preferably a collodio-bromide emulsion plate, to which no preservative has been applied, and if, when applied without the chemical restrainer it fails to attack the unaltered bromide, it may be considered as attaining theoretical perfection. It will be evident from what has been said that the amount of restrainer required with any developer must largely depend on the developer itself in the first instance, and on the kind of plate to which it is applied in the second instance. The mechanical restraint of the gelatine is that which will allow a perfect developer to be employed, for such restrainer in no ways destroys the work that light has done. On the other hand, when a chemical restrainer is used, such as potassium bromide, there is a constant tendency for it to undo the work that the light has performed, and a prolongation of development will have the effect of requiring a longer exposure to be given than would be otherwise necessary. This is, we know, not in accordance with what is often stated, but it is what we have found by careful measurement. The old idea of soaking an over-exposed plate in a bath of bromide was in effect not an old woman's nostrum. It had its effect, if continued long enough, and to secure negatives without this treatment would have been impracticable; that is, if the ordinary course of development had been followed.

ON THE COLORS AND SURFACES OF PHOTOGRAPHS FROM THE ARTISTIC POINT OF VIEW.

IN a paper by Mr. Roland C. Whiting, read before the South London Photographic Society, at a recent meeting, the speaker began by saying that the first question confronting an artist beginning a work, by whatever process or method of illustration, must be "What is to be the use of the object when created?" and proceeding, said:

"The painter, the poet, the author, the musician, or whatever the artist may be, has always some particular reason for the production which he calls forth, some sapient apology for bringing into existence the child of his imagination and talent. A reason, which is the moral he wishes to teach and the mission which he in the first place sets himself to fulfil.

"It is taken for granted, for the purpose of this paper, that a photograph is a work of art, and it will be understood that the standard of merit to which photography is expected to aspire is placed in a somewhat exalted position. I must here pause to mention that it is my desire in this, as in my other lectures of recent appearance, to endeavor to elevate the artistic status of photography as much as possible; and I must ask you to follow me in what I have to advance with the same desire in what I trust you will consider to be a laudable intention.

"DECORATIVE EFFECT OR PICTURE?

"From the utilitarian point of view, a photograph that lays claim to artistic qualifications must fulfil one or both of two purposes. It must be produced as (*a*) a decorative effect, or (*b*) as a picture in itself alone; or it may possess both of these qualifications in greater or lesser degree. Before we proceed any further, it will perhaps render the matter clearer if I define what these two characteristics really mean.

"If a picture is to be only a decorative effect, it must be produced so as to harmonize with the surroundings amidst which it is to be hung. It must form a part only of the whole comprehensive scheme wherein it is to find a place, and that in such a manner that it attracts no greater notice than its purpose requires. This is what is meant when a picture is described as a decorative picture, and when producing such there must always be fully borne in mind the conditions under which it is to be regarded.

"In contradistinction to this style of work is the pictorial photograph. All the conditions before mentioned must in this case be reversed. The picture must be composed with every regard to the balance of lines, of light and shade, and all the other canons of art, without any regard whatever to the requirements of the Hanging Committee, and when produced, and not before then, should the wall on which it is to be hung receive any consideration. Then its surroundings must be adjusted to suit the picture, and every endeavor made to enhance the pictorial effect of it in such a way that its greatest value may be brought forth.

"The neglect of these conditions is one of the reasons why a picture may look so much better on one wall than on another, and likewise will sometimes explain why a picture which is passed by unrecognized by the judges at one exhibition is awarded a prize at another.

"The two qualifications which have just been discussed are, of course, the extreme uses to which a photograph may be put; but perhaps the middle course, where a photograph has to be both pictorial and decorative, is not only the most frequent, but the most difficult to contend with. In the production of such works every facility must be employed, and every power made use of, to obtain the best results; and, amongst other considerations, the question of color and surface plays a most important part in producing that feeling of satisfaction and pleasure which the contemplation of a successful work of art should yield. I think also it will be seen, as we proceed, that color helps to no small extent in causing those soulful emotions which the works of our great artists, past and present, are so potent in causing.

"The Choice of Color.

"Now, in regard to the choice of color in which a photograph is to be produced, I hope to be able to show that a great amount of discretion is required to be exercised before finally deciding; and also I hope to impress sufficiently upon you the great necessity that exists in obtaining a correct judgment in this respect, that you will be induced to give greater attention to this matter when producing such future works as I hope will bring you fame and reputation.

"Now, as the argument of this paper, I contend that (with some exceptions) if a photograph is in any color other than black or its derivatives, its color should be analogous to the predominating hue of the subject photographed.

"Photographs of any subjects may be quite correctly produced in black or its derivatives, such as the various tones of gray, because they do not in any way attempt to render or suggest the color of the original, and, if by any means we conceive the color in which the original presented itself, it is only because we happen to know its color, and not because the tone of the photograph tends in any way to call that color to mind.

"In considering the color of a photograph from a pictorial point of view, and from the artistic standpoint, it must coincide with the color of the original in one of two ways:

"(*a*) The color should only be suggested, or

"(*b*) It should be of the actual color of the original.

"Of these two the former is decidedly the better choice, since a photograph cannot, as far as our present methods enable us, represent all the colors of the original subject, and, if the actual predominating color represented is employed, it is at best apparently only a failed attempt to reproduce a picture in the actual colors of Nature; whereas, when the original predominating color is only suggested, then no idea is produced that any attempt at reproducing the original colors had been made, but that the original colors were only suggested.

"It is very bad taste to employ a color which is doubtfully suggestive, such as, say, a greenish-blue, to suggest that which is a true blue; a cold sepia to represent a ruddy sunset; a green to represent a moonlight; or a blue to represent a green sea.

"The reason that this choice is not artistic is much the same as in the previous case about positive colors; but, where it is not possible to satisfactorily suggest the true color, it is better to use a positive color than one which will lead to doubt and uncertainty.

"If photographers would only realize the fact, they would see that this question of color really places a great power in their hands, whereby they could very greatly enhance the value of their pictorial efforts But it must be remembered that it is very possible to overstep the mark in such matters as this.

"Bartolozzi, well knowing the beautiful effect of the red chalk used by draughtsmen in making studies, thought to employ the color for engraving purposes, which, so long as he used it for fanciful and sketchy effects, produced some of the finest results imaginable; but some of his engravings do not appeal so strongly to the artistic taste, because the color employed did not quite so happily harmonize with the subject; still, I very much doubt whether he ever used such a color to give the effect of moonlight, although I have seen some similar attempts made by photographers.

"Photographic Reproductions in Color of Well-Known Pictures.

"Like all artistic innovations, people with the artistic instinct, but minus the artistic experience, are very apt to lay hold of this and other such effects, and, of course, unjustly use and even abuse the power that is in their hands for doing much that is good. With the idea of strengthening my argument, and also with the hope that I may render my remarks with greater clearness, I will cite a few instances of what I consider to be right and wrong in the choice of the color of photographic pictures. Now, by the employment of the various processes which are to be found under the name of photography, it is possible, I believe, to obtain a print in any one color that may be thought desirable; but for our purposes it will be sufficient to confine our attention to red, sienna, sepia (warm and cold), green and blue, all of which colors may be obtained by photographic means.

"At the commencement, and with the idea of strengthening my future remarks, I would like to mention the reproduction of a few well-known paintings.

"Now, I suppose you are all familiar with the Burial of Wilkie, by Turner, which hangs in the National Gallery? The prevailing color of this is decidedly cold in tone, yet I have seen this reproduced by photography in a warm sepia; whilst the same artist's Fighting Téméraire, which is, perhaps, the highest ideal of a glowing sunset, has been printed in a moonlight blue. I cannot conceive a greater violation of the possibilities of photography than this. Can you by any possible method of reasoning imagine anything of a sunny appearance in Turner's Téméraire in blue? Yet bear in mind this is no six months' amateur's mistake. The prints mentioned have been found in some of the principal print-sellers in London.

"Of course, if only business is intended, I suppose we are justified in prostituting the purity of art in any way that the great British public desires, at least, some may think so; but these remarks are not in any way intended for the use of those who buy and sell, but for that small and select minority who, like myself, can see that photography can be made, in suitable hands, one of the fine arts.

"Returning to Turner's reproductions, I would like to suggest that, for the Burial of Wilkie, either a very cold sepia, a black, or a bluish black will be found most in keeping with the subject; but, of the three colors, and without making an actual comparison, I think I should most prefer a cold sepia. For the Téméraire, a Bartolozzi red, a sienna, or a very warm sepia; but perhaps, for the nicest choice, a warm sienna. This is all, of course, in the event of a positive color being desired; but I, for choice, would much prefer the Wilkie to be printed in a good black, and the Téméraire in sepia.

" Paintings that are kaleidoscopic in color do not reproduce well in photography, owing to the absence of a definite color scheme, and, be it remembered, paintings of this class are generally the weakest of the particular artist's attempts. I might instance Turner's Queen Mab's Grotto, also in the National Gallery, and would ask you to tell me, if you can, how you would decide to print a reproduction of such a picture as that.

" I will not say anything further respecting the copying of paintings, which is not the average photographer's particular forte, but will endeavor to lay before you some ideas in connection with more photographic practice.

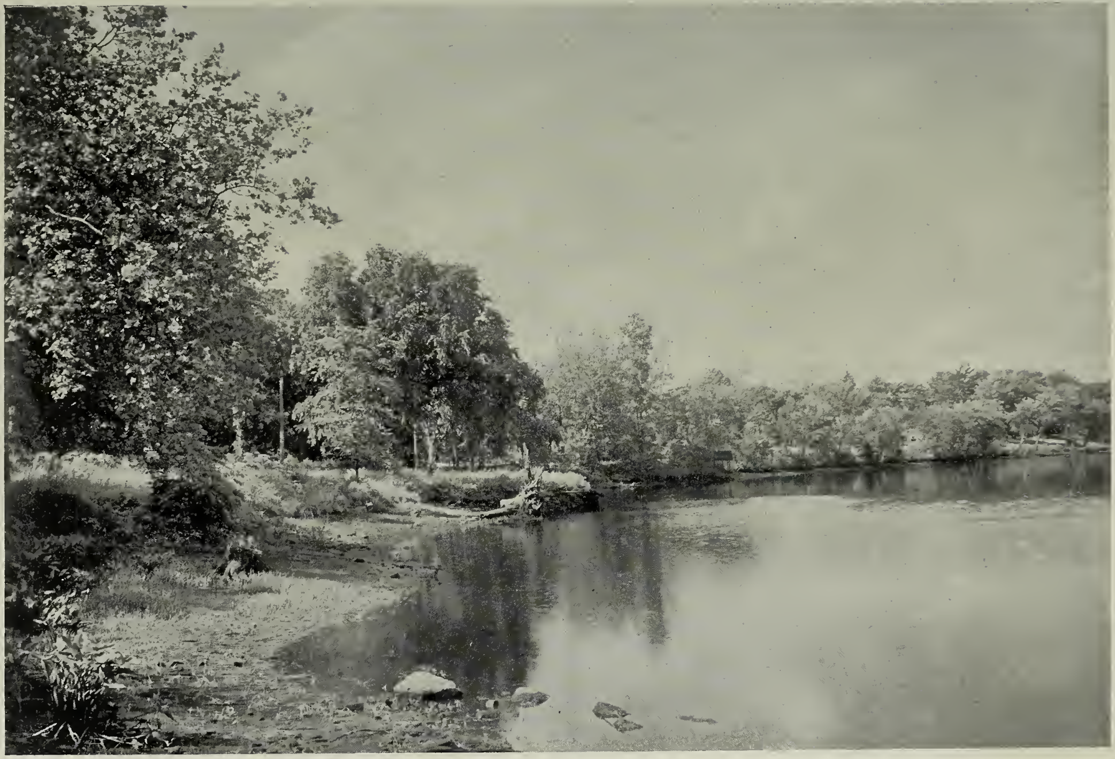
"COLOR OF LANDSCAPES AND PORTRAITS.

" For open landscapes, especially those including foliage and green fields, I think that neither red chalk nor blue can possibly be used with true æsthetic feeling, and from this we may conclude that very warm and very cold tones are inadmissible ; therefore we must look to the more intermediate colors for our choice. The positive color of course, is green, but as the positive colors are not the purest choice, the best suggestive color would be a greenish tone of black, such as it is possible to obtain in the carbon process. If this is not chosen, then, since we have come to the conclusion that the tone must be between warm and cold, and also bearing in mind the fact that we know the color of foliage is green, a coldish sepia will be well in keeping with the subject depicted.

" For seascapes red again is decidedly out of the question, and sepia cannot with justice be said to recommend itself much better. A greenish blue, a bluish green, or a pure green will be the color if positive, whilst the greenish black in carbon, or a cold tone in silver, must be used as suggestive tones.

" For moonlight views I do not see how anything but a bluish black can be used. A moonlight picture is frequently represented as greenish, but I cannot say that I have ever seen a green moonlight in nature. We often talk of the "silver moon," and silver is certainly not green. The true color of a moonlight is really what is known as a French gray, but in the picture it is better to render it rather more bluish, for the sake of getting the cold brilliant effect which is really the charm in a moonlit view.

" In portrait and figure subjects, I think you will agree with me that no one desires to look either blue or green, and, even supposing the person depicted was dressed in a blue or green dress, it still would hardly be in keeping to print them in such colors. In every portrait or figure study the face is the prime object, and the color of flesh is decidedly warm in tone ; therefore we have the whole range of sepias, siennas and reds to choose from. Of course, red is the nearest to the



Negative by F. L. Fieger.
Made with Dallmeyer's new Stigmatic Lens F/6.

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LANDSCAPE COMPOSITION.

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positive color of the flesh, but I do not think there is any better effect produced than that of the ordinary photographic purple-brown. It certainly suggests the warmth of the flesh, and at the same time gives the necessary vigor to the picture which a portrait requires. Moreover, it is so purely a photographic effect, and that is a great deal in its favor.

" Now, all that has here been stated is, of course, in connection with pure pictorial photography, and the reason that I claim for advancing these ideas is based on the fact that " truth is the soul of art "; and that to produce truly artistic pictures we must get as near to truth as we possibly can.

" In decorative work the case is very considerably modified, and any color can be employed that will harmonize and fall in with the whole decorative scheme ; but even in this case the artist will show his good taste in excluding those subjects which do not coincide with the color employed ; such, for instance, as in chosing a picture which, owing to the requirements of the decorative scheme, must be red, the artist will exclude the uses of a cold seapiece in favor of an actual sunset view, which would be in keeping with so fiery a color.

" SURFACE : COARSE OR GLAZED.

" I will not detain you any longer on the subject of color, as I wish to say a few words upon another very important matter, that of surface. Let me, at the very commencement, raise my voice against the employment of that latter-day reviving of an almost defunct abomination, the glossy surface. I cannot imagine how any persons with any real artistic feeling in their nature can really say they like the highly glazed surface. I will tell you why I think so badly of it, and I think your indignation thermometer will rise to the same degree as mine when you fully realize the weakness of the elaboration which the condemned surface shows.

" One effect of glazing a print is to greatly enhance the detail all over the picture. Now, in a photograph there is nearly always too much detail showing at the very onset, so that it is quite unnecessary, and indeed objectionable, to do anything which will introduce more than it already contains ; in other words, the existence of an excess of detail gives the effect of over-finish. Now, when a painting possesses this character, it gives the appearance that much labor has been exercised in the attempt to produce a servile production ; it shows, therefore, a want of freedom and an absence of breadth of air. Likewise the glossy surfaced photograph presents the same character, and is besides, on account of its gloss, a showy, tawdry, glaring thing, which, to use a common expression, is somewhat loud. It cannot be said to embody refinement, because pronounced effect is considered to be contrary to refined taste.

" It also is not the outcome of any of the producing processes, as is the plate-marking in copper-plate printing, and cannot therefore be looked at in the same way that we look upon the tool marks in carving or the brush marks in painting ; and this very consideration shows that it is only the result of an outside process which is used to produce effect.

"Now, I maintain that, if it is necessary to resort to any means which are not truly photographic, it shows that photography here exhibits its weakness and its limitations to a sorrowful degree; but I am pleased to know that such means are not necessary. That photography can rank amongst the most beautiful of any of the art methods that are known, and there is quite sufficient charm in a photograph, pure and simple, for it to need no means to increase its worth.

"THE USES OF THE GLAZED SURFACE.

"Although I have spoken thus strongly against the glazed surface, it must not be imagined that I am blind to its uses. On the contrary, I consider that where it is necessary to force out detail it is a good means of doing so; and also I do not object to its use in very small pictures, such as locket miniatures and suchlike. In fact, I think it enhances the beauty of pictures which are small, by giving them a brilliancy which they really require, and the smaller the picture, the brighter the gloss may be. This last remark will show that I look upon the dead surface as best for large work. To some extent this is correct, but discretion must here be used.

"It may be taken as a general rule that the more objectionable detail a picture contains, the coarser the surface should be, and that the more the detail is desired to be brought out, the finer the surface is required. In most cases, however, it will be found that the roughness of the surface should be increased as its superficial area enlarges. Then, again, in a picture possessing a bold effect, the coarse grain will be more in keeping with the subject, and, of course, the reverse applies to pictures with weak effects.

"In decorative work the artist is quite at liberty to use either a glossy or a matt surface if the requirements of the scheme render it necessary to do so, and this without consulting the subject of the picture, because the pictorial effect is in subjection to the decorative scheme, and the surface chosen can be that which will produce the best harmony, or contrast if required, such as a glossy picture on a dead ground, or *vice versa*.

"I have now stated all that I think my argument requires, but before I close I would submit the following formulæ: When photographing for pictorial effect, the first thing to be considered and decided upon should be the subject; after which the color the intended picture is to be should be settled. When this is known, the kind of surface required should be determined.

"When all this is satisfactorily settled, it will be possible to decide upon which process will best produce these results. Then, and not until then, should the negative be made, for it is impossible to produce a perfect negative until it is known what kind of print is required, since scarcely two processes can be found which require quite the same kind of negative. This is somewhat contrary to the usual method where the negative is first made, after which the process is chosen, in most cases the color and surface being quite unconsidered in connection with the subject photographed. But the method I have advocated is working with an end in view, and it is working with an aim to get all that photography is capable of yielding to those whose heart is in the work and who love it for its own sake alone."

LANTERN SLIDES: A PLEA FOR, AND THE REASON WHY.*

By E. Dockree.

THAT pictorial results are obtainable, and can be effectively rendered by a lantern slide, seems now to be an acknowledged fact, notwithstanding the controversy and the statements to the contrary which existed some time ago.

There are "lantern slides" and "slides for the lantern." We used to ask what were the qualities of a slide which entitled the same to rank as perfect. The question was never answered, and we presume it never will be, there being so many diverse opinions on the matter. Those enthusiastic and persevering workers in this fascinating branch of photography being passing content with viewing the results in this direction, of those whose artistic capabilities, as far as photography allows, have won for them positions in the front rank.

There is no doubt that the beauty of a lantern slide, as a picture, depends upon the artistic composition displayed in the choice and arrangement of the subject depicted light and shade, and the technical knowledge displayed—self-evident in carrying into effect the worker's original conception. One most important matter, which must not be lost sight of, is the amount or intensity of light which is to be passed through the slide in projecting the picture on to the screen. If too much or too intense, all atmosphere will be absent; in other words, driven out of the picture. If too little, the aimed-for effect is missed. Remember, a good lanternist is almost as essential as a good slide-maker; the two combined it is indeed a pleasure to meet.

An eminent photographer and chemist once told the writer that the effect of a "really good lantern slide" could not be affected, when projected, by the amount or intensity of the illuminant used, provided it was sufficient. Such a remark is most absurd; all the more so, coming from the quarter it did. For those who have never given thought to this point and would like to try the experiment, project a "really good slide" by means of a mixed jet illuminant, then try arc light. Where the effect by the former method was as near perfection as possible, the latter will entirely destroy or kill any "atmospheric feeling" which was rendered by the oxy-hydrogen.

Another point to be borne in mind—absolutely clear glass should be non-existent in a perfect slide. Be not guided by those cranks who like "soot and chalk," for the latter quality is often too evident in the works of men who prate about lantern slides and know nothing as to the making of a good one. Veil or fog, not too deep, is a very valuable quantity in a transparency; it gives a quality of effect and distance, besides doing away with the idea or impression conveyed that the sun is always shining when exposures are being made, as one often imagines must be the case.

The world is not always bathed in sunshine, be it remembered. We breathe air. Then let us, as far as practicable, show it in our lantern pictures the same as in our paper prints. Clear glass will do away with this fact, in addition to making the view appear like "petrified nature." Ferridcyanide of potassium is a most valuable adjunct to the photographer, but wants most careful use, if used at all, in lantern slide-making, this chemical being always recommended to remove veiling or fog, which may be seen creeping or covering the plate. If not too deep, leave it there; if too deep, make another slide—the longest way round is the shortest way home in some cases.

Toning of slides to make a set of one consistent color is not to be recommended; it is quite unnecessary. Change of color relieves the eyes when sitting out a lantern show. The writer carefully abstains from this process, except where statuary or snow is the subject of the picture; then a warm brown, or that merging on a red, is obtained by exposure and development; afterwards, toning in a sulphocyanide and gold bath to desired color. The best color or tone adapted to a slide is that which will convey the most pleasing impression of the subject.

All practical tones, green excepted, are easily obtained by a slow plate generously exposed and well restrained development; but be it not forgotten that slides, when projected, appear one degree less warm in color than the original. Another thing most essential to the making of a good slide is a good negative—that class of a gray, yellow color—and one which will yield a full quality platinum (C. B.) print. "Soft and vigorous," these are the watchwords in making negatives from which it is the intention to procure really good slides. These remarks apply to the gelatine process principally.

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* *The Photographic News.*

A point which is often debated, and still remains unsettled, is the difference, if any, between a reduction slide and one made by contact. Personally, I am inclined to feel that the former method produces a certain quality of softness which is not discernible in that obtained by the latter; and, acting up to this belief, the reduction method is the only one I ever use. * * *

DEVELOPMENT.

Upon this point and the exposure depends the whole success or failure. Finding pyro and ammonia (well restrained) yielding all that was required, the same can be most highly recommended. Formula here given:

A.—Pyro	60 grains.
Sulphurous acid	5 drams.
Sulphite of soda	180 grains.
Distilled water	4 ounces.
B.—Ammonia (.880)	2 drams.
Ammonium bromide	120 grains.
Distilled water	4 ounces.

These are stock solutions, and for use, 40 minims of each, to which is added 1½ ounces water, will be found to cover a lantern plate well. Development is slow, but can be depended upon to yield a first-class image, with fairly correct exposure. Tone of slide should be decided upon before exposure, and by careful attention to details this seeming difficulty will pass away. Use one brand of plate known to yield good results, find out its peculiarities, and work as far as practicable with your lens in camera at *f*/16. On a slow lantern plate, with the negative (of qualities named) pointing to a fairly bright sky, the tones, with the said development, will run as follows:

1 minute	Black to deep brown.
1½ minutes	Brown.
2 to 3 "	Warm brown.
3 to 5 "	Warm brown to purple.

These times and tones will vary a little one way or the other, according to the brand of plate used, so the above table must be regarded as approximate, and the operations carried on accordingly.

Amidol is a good developing agent, but the rapidity with which the image flashes out has a tendency to startle the beginner, and the correct density obtained thereby is somewhat difficult to arrive at, except after constant practice. The best formula known to the writer is:

Amidol	40 grains,
Sulphite soda	1 ounce,
Water	20 ounces,

A few drops of 10 per cent. bromide of potassium being added as a restrainer, if necessary. With short exposures, an image of a velvety black tone should result the plate used being a slow one. Carry the image to full density during development, the depth being so reduced during the fixing.

In mixing the pyro-ammonia developer for use, the worker should always bear in mind what he wants to do, as regards tone, and develop with a definite end in view, getting out in the slide all beauties visible in the negative. It may take time, and possibly the application of three or four different strengths of developer, stronger or weaker, well restrained or less so, in either one or all of its components.

But the end justifies the means; and having gained the object of your ideas and ambition as to qualities—artistic and technical—satisfaction will repay for time and trouble expended.

Occasionally, "brush development" has to be resorted to, and properly carried out, places a most powerful method in the hands of the careful worker. To avail oneself of this, important, but critical, means of development, the most advisable way of procedure is as follows: Knowing the tone of image you desire, mix up a dilute developer weak in pyro, getting all detail out as far as possible. This done pour off and flush the plate with water; return to the dish, taking some of the dilute developer, to which has been added a few minims more of accelerator, proceed to paint or stipple with a soft brush, suitable in size, dipped in the solution, the part in which it is desired to obtain more detail; flush the plate well with water between each "painting"; continue until desired result is attained, then apply to the whole surface of the plate a fresh developer rich in pyro, weak in accelerator, well restrained. This will act on and build up the already developed but thin image into a slide possessing sufficient density; in other words, "detail first, density afterwards." Wash and fix in the usual way (that is, ten minutes in hypo bath, 3 ounces of hypo to 15 ounces of water); wash in running water thirty minutes, then immerse in alum bath five to ten minutes, then well wash for twenty minutes; stand up the slide to dry in a place free from dust.

Sometimes intensification has to be resorted to, and with most beneficial advantage, too. That which I generally use, and can speak of in the highest praise, is a mixture of pyro and silver made as follows:

A.—Pyro	6 grains.
Citric acid	15 "
Distilled water	1 ounce.
B.—Silver nitrate	30 grains.
Distilled water	1 ounce.

The slide must be well washed, alumed, and washed again to get rid of any possible traces of hypo. This fact must be borne in mind—if neglected, stains of colors beyond description will most assuredly accrue—whereas, if all is as it should be, it is possible by this means to build up a ghost of an image into a very fine slide, and with one very great advantage, the color or tone originally obtained is unaffected. For use, take sufficient of *A* to cover the plate, add thereto a few drops only of *B*, flood the plate therewith, and watch it act, slowly and surely. Desired depth reached, remove the plate and well wash with water. A slight milkiness will be noticed as having crept over the film—nothing to be alarmed at - being only the free nitrate of silver coming into contact with, possibly, lime, etc., in the washing water. Immerse the slide in a little clean hypo; the opalescence disappears at once. Remove, well wash five minutes, set up to dry. Be cautious of dust settling on the wet film, or what appears insignificant as a speck in the slide will not be so when the same is projected.

Many workers varnish their slides to increase the "brilliancy" thereof. In the mind of the writer, this quality is a questionable one, and can certainly be overdone, and in many cases detracts from the beauty of the picture when projected. It is one of those matters where the individual feeling must be guided by circumstances as to the desired effect, for "brilliancy," like "clear glass," is not always desirable.

Varnish, as we all know, protects the film from damp, etc., and should be applied, if used at all, to that end. The best for this purpose is made of amber dissolved in chloroform and ether, procurable at dealers. It dries instantly upon application, is colorless when dry, and affords a fine tooth for the lead pencil should retouching be found necessary in the slide—another matter requiring care— or the amplification of the pencil marks, when the slide is projected, will somewhat mar the contemplated improved result.

Masking a slide—how much to cover up and how much to show—requires as much care as the trimming down of a print held on any other support. It is, therefore, better for the worker to make his own masks—easily done with the pieces of opaque paper, 3¼ inches square, sold for this purpose, and procurable at all dealers. Placing a piece of the paper upon a piece of ground glass to prevent slipping, proceed, by means of a straight-edge and sharp knife, to cut out the portion of the paper which, already marked with a pencil, will allow to be shown on the screen the desired part of the slide forming, in the worker's idea, the thought-out picture.

THE SULPHO-CYANIDE OF GOLD TONING BATH.*

By John A. Randall.

THE sulpho-cyanide bath for toning gelatine and collodio-chloride papers is now in use; yet, on turning to any work of reference, the information available with respect to its chemistry and principles of action is very scanty. No photographic authority appears to have investigated the subject, and even from purely chemical sources little can be gathered concerning the properties of sulpho-cyanide of gold. To obtain clear notions of the principles of a process undoubtedly helps its practical application, and, perhaps, the vague ideas current regarding this toning bath account for the uncertainty, and oftentimes failure, in its use. I do not intend to discuss any question of theoretical chemistry in the present article, but merely to bring forward several conclusions derived from daily experience that may, in part, give the technique of the sulpho-cyanide bath.

In preparing this bath, a solution of gold chloride is added to an excess of a sulpho-cyanide salt, in agreement with such a formula as the following:

Gold chloride	2 grains.
Sulpho-cyanide of ammonium	30 "
Water	16 ounces.

By these means we produce a deep red precipitate of sulpho-cyanide of gold, which immediately dissolves in the excess of sulpho-cyanide present The reason for this method of proceeding is that two sulpho-cyanides of gold are known, one being formed when gold chloride is added in excess to a sulpho-cyanide, the other when the sulpho-cyanide remains in excess. The former compound is exceedingly unstable, readily decomposed by heat, and its solution blackening when exposed to light. It crystallizes as straw-colored prisms. The second sulpho-cyanide of gold is produced when gold chloride is added to an excess of a sulpho-cyanide at ordinary temperatures, and is the compound utilized in toning.

Its color in the crystalline form is orange red. This body is fairly stable, when in the presence of an excess of a sulpho-cyanide, but becomes less stable as the excess salt is diminished. The difference can be readily shown by first taking a solution of sulpho-cyanide of ammonium, and adding gold chloride, drop by drop, until the red precipitate formed refuses to dissolve, thus indicating a surplus of the gold salt. Part of a mixture so prepared, and kept in the dark, remained unchanged for two days, whilst a second portion exposed to light gave a deposit on the side of the bottle, yellow by reflected, and blue by transmitted light, showing the revival of metallic gold. A second mixture was made according to the ordinary toning bath formula, divided into four portions, and treated as follows: One exposed to light under blue glass, a second under red, the third to diffused daylight, and the fourth put away in a dark cupboard. After leaving a fortnight, no visible alteration could be detected in any, and all toned with the greatest facility. Sulpho-cyanide of gold, in the presence of a sulpho-cyanide, thus appears to be unchanged by light. I have not tested it beyond a month, but see no reason to suppose that prolonged keeping would throw out metallic gold, so spoiling the toning properties.

It is a matter of common experience that a sulpho-cyanide bath once used can rarely be used again, owing to the gold being thrown out of solution. My baths had already shown this peculiarity, and having noticed that the deposit was always thicker on the side of the bottle toward the light, I determined to keep the bath in the dark after use, finding that this prevented to a large extent the deposition of gold. The silver salts that are brought into the bath on toning are, to some extent, the cause of this precipitation of gold. In mixing a trace of silver nitrate with a new toning bath, and exposing to light, the solution darkened to a beautiful red by reflected light, and, being blue by transmitted light, indicated the presence of finely divided gold. A similar change took place in the dark, but not to the same extent. Organic matter acts in like manner; on adding gelatine to a toning bath, and exposing to light, a red color was given. A similar mixture kept in the dark for the same period showed only a faint coloration, the toning properties being unaffected. From these simple experiments I conclude that a pure solution of sulpho-cyanide of gold, dissolved in a sulpho-cyanide salt, will remain unimpaired for a month or more; also, that the introduction of silver nitrate, gelatine, or other impurity causes the gold to precipitate very quickly if exposed to light, though not so rapidly if in the dark.

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*The Photogram.

On comparing the toning formulæ of various paper-makers, it will be found that the proportion of sulpho-cyanide varies greatly, a caution being added that no excess over the quantity mentioned should be employed. The variation and the caution are apt to puzzle, and require explanation. This is contained in the fact that the sulpho-cyanides have a softening action upon gelatine, and to reduce this to a minimum only the requisite amount of sulpho-cyanide should be used. In all the formulæ the sulpho-cyanide is greatly in excess of the quantity needed to form sulpho-cyanide of gold by double decomposition, this being necessary in order to dissolve the gold salt. All the formulæ, however, could be brought to an equality if some chemist would determine the exact amount of a sulpho-cyanide required to dissolve a given quantity of sulpho-cyanide of gold. I am inclined to think that the usual formula contains too much sulpho-cyanide, and that a better bath would result if it were reduced to the smallest possible quantity.

Another important property of the sulpho-cyanides is that of acting as fixing agents. On immersing an untoned silver print in a plain solution of sulpho-cyanide of ammonium, it immediately changes to a pale lemon color. When a gold salt is present the change is not so marked, since metallic gold commences to deposit on the image as a result of the first reaction. In such manner the toning proceeds and the image darkens. From this property several conclusions of practical value can be deduced. If on placing the prints in a bath they at once lighten, and remain light, it is evident that the gold has been exhausted. Supposing, however, the lemon color is first given, and after awhile the prints tone correctly, it indicates that the sulpho-cyanide is too abundant. For proper toning the changes should be simultaneous; that is, the fixing action and substitution ought to run together, the prints scarcely altering in depth of tone. The best tones, both warm and cold, will always be given by a bath which does not greatly change the depth of the prints when first immersed. It is sometimes remarked that the sulpho-cyanide bath will tone with or without gold. This is due to sulphur toning. A bath giving lemon-colored prints at first, and toning slowly afterwards, should always be suspected of sulphur toning. Deficiency of gold may also be known by double toning; that is, the lighter portions of the image become blue and overtoned before the shadows have lost their redness. In such cases, the bath being too dilute, the deposit of gold is thin, and though sufficient to show a change in the half-tones, it does not visibly alter the color of the shadows. In a perfect bath the shadows tone first.

The keeping qualities of the bath, and the time to use it, are questions upon which opinions differ. The usual advice is to employ it immediately after mixing, though this is not essential, twenty-four hours or a week can elapse, and the solution at the end of this time will work admirably. It is a common practice to mix a new bath for each toning, throwing away the solution after use. This may be the safest mode for the inexperienced, yet it is doubtful if better results follow from using only fresh solutions. Having tried a number of toning baths I retain a decided preference for those that are old. The best toning I ever used was a borax bath that had been in constant work for seven years. It was the color of port wine, and toned the prints to that pearly transparent tint which it is the aim of photographers to secure.

Little borax had been added, the finely divided gold that gave it the rich color seeming to act the part of a physical restrainer, so regulating the toning. The sulpho-cyanide bath can likewise be brought into a similar condition. When after the first use it is put aside, it will, in a day or two, become of a pinkish color from the gold being thrown out of solution. Its toning properties will remain unimpaired, for, on adding more gold chloride fresh prints can be toned with facility. On contining to add the gold chloride however, a point at last will be reached when the sulpho-cyanide of ammonium is exhausted, the red sulpho-cyanide of gold forming with difficulty and refusing to quickly redissolve. More sulpho-cyanide of ammonium must then be added in sufficient quantity to form and to quickly dissolve the blood-red sulpho-cyanide of gold given on the addition of gold chloride. Working on these lines I have had a bath in daily use for a month, detecting no falling off in the tones, nor in the rapidity of its action, in spite of its deep coloration.

Theoretically every toning bath must have a chlorine absorbent in its composition, to avoid bleaching of the silver image. The borax bath above alluded to was singularly free from this defect. Many photographers with a lengthy experience have been in favor of old toning baths discolored with use, and it seems not at all unlikely that these solutions, saturated with finely divided particles of metallic gold, provide in themselves the best form of chlorine absorbent.

THE GUM PRINT PROCESS.

By Florence.

(Continued from page 174, and concluded.)

THE object of the Three-Color Gum Print Process is, by the printing over each other of three suitable colors, to produce a similar color effect to that shown by nature. But to accomplish this, the principle of the three-color print has to be applied; that is, the printing with three negatives, which were obtained under special conditions.

For the print three negatives are required, one of which is made through a filter of a blue color, one of a red, and one of a yellow color. It is therefore necessary for the production of these negatives that those colors, which are printed under the negative, should act very little, but all others as strong as possible, upon the plate. This can be done by the use of suitable color-sensitive plates and suitable light filters, secreting those rays as much as possible, which are not to act.

So, for instance, a plate has to be applied for the red print negative which, besides being sensitive to blue, is also sensitive to yellow and green, excluding the red by a light filter of suitable coloration. Almost any good light filters are suitable for the purpose of the three color gum print, provided orthochromatic plates are used, and the result can be influenced considerably by suitable putting on of the color and repeated printing. But even ordinary plates can also be sensitized specially for the colors in question by means of suitable color matters, and the filters may be produced and applied as mentioned in Hübl's book about the three-color print. Henneberg recommends the working with orthochromatic plates, yellow-green and yellow-red sensitized Lumière plates.

As light filters, plano-parallel glass plates (plate glass) which have had a corresponding colored coating, may be applied. The simplest way to obtain this is by mixing thin collodion with the suitable color-matter and flowing the plate with the same, whereupon, after drying, the film is covered by a protecting glass plate. To obtain a sufficiently intense coloration, both glass plates may be coated with the colored collodion.

Von Hübl recommends the following filters for the red print negative: Two glass plates coated with brilliant green or aurantia collodion, which, one laid upon the other, are to produce the correct color tone. An orthochromatic plate (colored with erythrosin) such as bought in market, is sufficient for this.

The composition of the three colors is, however, to be considered if good corresponding results are to be obtained, and according to the nature of the print colors, particular filter and sensitizing colors are required. If, as recommended by Henneberg, yellow (gummigutt), red (Krapplack) and blue (Paris blue) are taken, the following filter and sensitizings are suitable according to Hübl:

(1) Yellow print negative: An ordinary gelatine dry plate is used, and as filter a glass plate coated with Victoria blue.

(2) Red print negative : The ordinary gelatine plate is bathed in 10 cubic centimeters acridin N O; alcoholic solution, 1 : 150; chinoline red, alcoholic solution, 1 : 150 = 1 cubic centimeter ; eosine solution, 1 : 500 = 1 cubic centimeter ; water, 300 cubic centimeters. As filter, the above-mentioned collodion, composed of brilliant-green and aurantia is used.

(3) The blue print negative : For this a red-sensitive plate is to be used, and Von Hübl recommends the Lumiere red-sensitive plate. A combined filter, composed of 2 glass plates, of which the one is coated with a 0.3 per cent. chrysoidin collodion, the other with $\frac{1}{4}$ per cent. saffranin collodion, is used.

In taking a picture, it is necessary that in the production of the three negatives no change is made regarding their exposure, that is, that all three are taken with the same diaphragm opening, and under the same conditions. Care must be taken not to move the camera.

The time of exposure for the three negatives differs, of course, and depends essentially upon the filter and the color-sensitive plate. Henneberg has established the following rule: For the yellow plate 1, for the red plate 40, and for the blue plate 100. For the yellow print plate the time of exposure should be as short as possible, while for the blue print plate a considerably longer exposure, as mentioned, will do no harm. Regarding the character of the developed negative, the yellow print negative should be hard, with under-exposure character, the red print negative strong and dense, the blue print negative brilliant and very detailed.

Before printing, every negative should be provided with a mark, admitting a registering of the prints, so that the several pictures can be printed one over the other. In the production of the colors it is of great advantage to take a 3 per cent. starch solution for dissolving the gum in place of water.

The strength of the color solution has to be determined by experience. It should be considered, however, that by printing over another color a different effect will result, and particular attention should therefore be paid to the complementary colors, if satisfactory results are to be obtained. The printing has to be done from the film side, as a color film already present would, of course, make printing from the paper side very difficult. Which color is to be printed first seems to be generally indifferent. Still this seems not to be so entirely. It appears to me most correct to print that color first which is ruling, and to produce the harmonic effect by careful over-printing of the other colors.

The color films may generally be taken a little thinner than in the one-color gum print. The printing time has, of course, to be taken correspondingly. In developing, one can proceed in the ordinary way, only the paper should each time be thoroughly dry before a new color is put on.

Henneberg recommends treating the finished picture, after it has been dried thoroughly, with an alum solution, and asserts that it gains thereby in strength and brilliancy, and that the whites of the paper appear to better advantage.

The gum print requires in every form, besides technical ability, an artistic sense and correct knowledge of the manipulations. The process requires, therefore, an experienced hand, and thorough knowledge of colors.

To what extent the professional photographer will regard this process with favor remains to be seen.

Translated by

HENRY DIETRICH.

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THE INTERNATIONAL ANNUAL for 1899, Volume XI, is now almost ready for publication, and will be one of the best of the series. It contains 336 pages of text, indexes, formulas and matter of interest and value to every photographic worker, and is profusely illustrated. As in former years, a direct photograph forms its frontispiece, and there are in addition between forty and fifty full-page illustrations and nearly two hundred text cuts. The quality of the illustrations is very high, many of the best convention pictures being included in the full-page illustrations, as well as some of the best work of our leading amateurs. The text illustrations are largely representative of the work of the various authors, and as such are highly interesting. We understand from our publishers that the advance sales of the *Annual* are unusually large.

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All copy for December number must be in our hands not later than November 15th.

CHANGING OF NEGATIVES INTO COLORED POSITIVES.

By Raph. E. Liesegang.

I MENTIONED a method last year for the production of direct reliefs from finished gelatine negatives, bromide of silver prints or finished Aristo (chloride of silver gelatine) pictures.

These pictures are put into a saturated solution of persulphate of ammonium. They bleach therein completely. If immersed afterwards in lukewarm water, or rubbed with the (of course, warm) hand, the originally black parts will dissolve, while the other parts remain intact. Thus a relief will form from a negative in which the unexposed parts are highest, while the exposed ones have become more or less decomposed.

The chemical processes upon which depends the solubility of the parts containing silver has not yet been explained, and they became so much the more problematical, as I have met with obstacles and failures in the production of these reliefs, when at first trial I had successfully made a great number of them.

The solution of the persulphate of ammonium, which I used in my first experiments, was pretty old. I made a note of this at the time. When, a short time ago I succeeded again in the production of such reliefs, it was again an old solution I used, and one which had been exposed to the open air for weeks. With fresh solutions I could do absolutely nothing.

This does not simplify or bring us nearer to an explanation, but the observation is, at all events, important for the professional photographer.

It may still be remarked, that the solution should, of course, not be too old, as under such circumstances a dissolution of the whole gelatine film might take place. Fresh solutions seem to have rather a tanning effect. I would prefer a mixture of old and new solutions.

The process finds a good application for the production of colored positives from negatives, for instance lantern slides.

The negatives must not be intensified, and should be of a pretty short exposure. It is also preferable, that they have not been developed with pyro, but with a non-coloring developer (amidol, paramidophenol, hydrochinon).

Prepare a saturated aqueous solution of persulphate of ammonia, and let this stand in open bottle for about fourteen days.

The pictures are immersed in this solution. In the course of a few minutes they will bleach. Wash them superficially in water, and rub with the hand. By the faint warming the dark parts of the gelatine film will dissolve, while the others remain.

This relief can now easily be changed into a colored positive; it requires only to be immersed into the aqueous solution of some aniline color matter. The gelatine becomes saturated with the color matter, and in consequence of the varied thickness of the film the picture results.

With regard to particular durability of the color matter, the same might be made to form by double decomposition of two salt solutions within the film, similar to the intensification of carbon pictures.

The relief production succeeds easier with paper pictures than with negatives, and a trial with, for instance, a chloride of silver picture would be advisable. It should be rich in contrast, and should have no fog, whether the ordinary one or the yellow fog originating from silver.

Rubbing of the picture should be avoided as long as it lies in the persulphate of ammonium solution.

Translated by
HENRY DIETRICH.

JOTTINGS FROM GERMANY.

TO obtain upon zinc plates, pure and sharp, as well as delicate, transfers (no matter whether the transfer is by the dry or wet process), proceed as follows: The zinc plates are thoroughly cleaned, and the fat still adhering to them from their last polish is removed with tripoli and a moist chamois skin, whereupon, in a moist state, they are put into the melting solution, which consists of—

Water, boiled	1,000 cubic centimeters.
Alum potassium	50 grams.
Gum solution, strong	50 cubic centimeters.
Nitric acid	20 " "
Sulphuric acid	5 " "

In this bath the plate remains, shaking the etching tray continually, for two to three minutes, without touching the plate. It is then put into running water, and, after fifteen minutes, it is left in the open air to dry. The slightest rubbing would destroy the extremely fine grain of the plate.

Action of Heat upon Bromide of Silver Plates.—Gaedicke has recently made some interesting tests to ascertain the action of a higher temperature upon dry bromide of silver, and he has found that the action of a temperature increased to 90 degrees has an influence upon the latent picture opposite to that of weak light, and that it will cause no fog at short exposure. As, however, the heat produces fog at longer duration, Gaedicke is of the opinion that this action must be an indirect one, and can perhaps be explained by the secondary action upon the gelatine, or the vapors absorbed by the same. All tests showed, however, that under the higher temperature, a reduction of the latent picture had taken place.

Magnesium Light for Orthochromatic Views.—For the purpose of reproduction, photography, with orthochromatic plates and mixtures of magnesium powder and bariumhyperoxide, have lately been used quite frequently. These mixtures burn very quickly, and give a light in which the green and yellow rays predominate, so that by their use the yellow screen may be dispensed with. Still, this mixture should be handled very carefully, as the vapors are extremely poisonous and injurious to the human organism.

Translated by
HENRY DIETRICH.

VARIOUS PHOTO-CHROMIC METHODS.*

By C. Fleck.

THE popularity of photo-chromic reproductions has found its expression in the great demand for the so-called photochroms which are mostly the work of some Swiss firms, foremost amongst whom stands the Zurich Company. The present paper is, amongst other things, devoted to a general working description of the process without trying to divulge any of the *quasi* secret methods.

The process is by no means a latter-day invention, as it dates back into the sixties, and is based upon the bitumen process. Unfortunately in the early days there was a lack of skilled workers, since both photographic and lithographic methods were still young, and it was left to more recent times to attain practical success with this photo-bitumen process. In so far as Switzerland has to-day almost the monopoly, these photochroms still command fairly high prices.

As regards the *modus operandi*, we may distinguish between the grained stone method,and the smooth stone method, and in the author's opinion the process long adopted by Messrs. Orell Füssli & Co., and since taken up in a more or less similar way by the other Swiss firms, is the one to be preferred.

As many stones as we shall have colors, are grained in the usual way by means of sand or crushed glass, coated with sensitive bitumen, and copied under the original negative. The necessary exposure depends upon the character of the coating of the negative, the intensity of the light, and varies between thirty and forty-five minutes ; electric light requires double the exposure.

Development is effected with French oil of turpentine, or for over-exposed stones with rectified oil of turpentine, which attacks the over-exposed bitumen much more rapidly than ordinary turpentine. It is advisable to preliminarily treat the shadows with a tuft of cotton wool or soft brush ; very much over-exposed portions may be dealt with, even after the stone has been washed and isolated, by applying *oasa sepia pulois* (powdered cuttle-fish bone), or pumice stone.

For the key plate which is to be printed in brown, only the highest lights must be removed ; for the blue plate which, as a rule, requires the least impression, all parts which contain no blue must be removed in development, or where this is not possible, by means of a scraper. The same holds good for the other colors ; darker tints of a color must be intensified with lithographic soft chalk, but complete blocking out with lithographic ink, as often done, is not advisable, because it mars the artistic effect.

Etching is done in a solution of :

Nitric acid....................................	3	cubic centimeters.
Hydrochloric acid..........	2	"
Gum solution.................................	40–50	"
Water..	100	"

The stone is then inked up, dusted with very fine resin, talced and put in stronger acid ; the etching is stopped by thoroughly washing, and the stone is then gummed and put away for about twelve hours. Before proceeding to print, the stone should be washed with spirits of turpentine, so that the first ink and the resin dust is removed, without, however, damaging the bitumen film, which is quite feasible with a little care. If, after a few hundred copies have been taken, renewed washing in spirits of turpentine is deemed desirable, a destruction of the bitumen film will not matter, since by then the drawing has sufficiently penetrated the stone so as to yield sharp and clear proofs.

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* *The Process Photogram and Illustrator.*

As regards the purification of the bitumen and the preparation of the sensitive solution, it should be observed that Syrian asphalt, as obtainable from a druggist, and dissolved in a suitable solvent, is not particularly suitable, since owing to its admixtures it requires too long an exposure. In first instance it will be necessary, in order to obtain a more transparent film, to remove the brown color by extracting it with oil of turpentine and ether. The purification of the asphalt is best done by adding to 300 cubic centimeters French oil of turpentine, coarsely powdered asphalt in small quantities, and constantly stirring up until we obtain a stiff paste, which should be left for a day, after which it is kneaded and so much ether added that it covers the asphalt about 3 centimeters deep. After two hours the discolored (brown) ether, which shows a greenish black fluorescence, is poured off and replaced by fresh ether, the asphalt being every time kneaded so as to present every part of the paste to the action of the ether ; this process must be repeated at least three times, but not oftener than five times. If we were to continue this process of extraction until the ether would pour off perfectly colorless we should, it is true, obtain an exceedingly sensitive bitumen, which would only require six to ten minutes' exposure to direct sunlight, in order to yield fully printed images, but such a sensitive preparation is by no means as useful in practical work as a less sensitive quality. In first instance much time is lost and much material wasted in too often extracting with ether ; besides, such bitumen requires absolutely perfect negatives, which sometimes cannot be procured, as otherwise we obtain foggy copies which are badly fitted for etching. But above all it must be remembered that bitumen of the highest chemical purity does not resist sufficiently the action of the acid. It will thus be seen that a moderate amount of extraction answers best.

After the last ether has been poured off, the bitumen should be well dried and ground to a fine powder ; 3 grams of the latter are now placed in 30 grams of chloroform, and when quite dissolved 70 grams of crystallizing benzol (saturated with Soudan pigment) are added ; the presence of 2 or 3 grams toluidinoil endows the bitumen film with a higher resistivity against external influences. The Soudan pigment increases the sensitiveness of the bitumen solution, and greatly assists in development. The solution must be filtered through paper, and is then poured upon the stone like collodion upon a glass plate, the stone being for this purpose supported by a hemisphere (or rocker: Ed.). The coating should be as thin as possible, because such films copy more rapidly, and, being more easily penetrated by the light, become more resistive to the acid ; they also more readily take the ink.

For the smooth stone we have three different methods ; either sensitive bitumen is dusted on the stone and the latter exposed under the original negative, or non-sensitive asphalt dust is employed, and the stone coated with chromated glue, or the original exposure is made through a grained screen.

The first method is much simpler, both as regards copying and treatment, than the process with a grained stone before described, though the quantity of purified asphalt dust required, makes the method expensive. Exposure takes about twice the time, because, instead of a very thin film, a small but solid granule has to be affected by the light. Over-exposure is, however, quite impossible, because in place of a smooth bitumen surface we have a discontinuous surface, through the pores of which the naked stone can be discerned. Both development and etching thus become exceedingly easy and convenient. The strongly exposed grain does not float off during development, resists the acid well, and also withstands the mechanical pressure exerted upon it by the inking roller. It is easy for the retoucher (the lithographer) to attain very fine effects by working upon the grain with the scraper; likewise, the use of lithographic chalk is much facilitated, such as will produce clouds with moonshine effects.

For the second method ordinary asphalt powder is employed; the surface of the stone after dusting, when viewed horizontally, must appear velvety; when viewed from above it must still show the actual stone; for a small stone it will be found possible to carefully turn it over, and to burn in the dust by moving the surface to and fro over a spirit or gas burner. Large stones should be warmed by the sun or placed in an oven, and when warm, coated with the following glue solution: 50 grams best glue are soaked in 300 cubic centimeters distilled water, then melted in a water bath, and when cooled 50 cubic centimeters decanted albumen are added, besides 8 grams powdered bichromate of ammonium, 2 grams of chromic acid, and 5 cubic centimeters of ammonia. When filtered, and left to ripen for a few days, this solution is ready for use, and will keep, if protected from light and dust, for half a year. Years of experience tend to disprove the idea that a fresh solution is better than an old one. The stone is then exposed under the original negative for five to fifteen minutes to direct sunlight (according to the character of the negative), and developed, like an enameled copperplate, with perchloride of iron; the stone is edged with wax. After etching and washing, it is treated like a carbon transfer.

The last method which remains to be described, requires a grained negative. It is easy to produce a grained screen, which is very transparent and yet opaque, if we boil resin with American gas soot (hydro-carbon black) in the proportion of 5 to 1; the mixture, when poured into water, or on an oiled stone, will solidify, and can be powdered. This powder is placed in a dusting box, which must be rotated a few times and then brought to rest in order to place the glass plates inside; the latter consists of two perfectly plane but very thin pieces of plate glass, which should previously be coated with a film of sewing machine oil (applied like collodion). They are placed upon the grill in the dusting box, and left there for one hour; after this the plates are placed carefully, film to film, in a press for twenty-four hours, and the edges bound. Of sixty different oils, sewing machine oil was found to be the best, because of its transparency, purity and freedom from oxidation. Such a grained screen is placed in front of the dry plate, and an exposure made (which, of course, takes somewhat longer). Development presents no special features. The stone is coated, as in the first method, with bitumen solution, exposed for one hour to direct sunlight, developed, washed, gummed and inked up.

Such grained negatives enable us to produce typographic blocks, and from the latter, transfers for the various color stones; furthermore, we may employ the chrom-albumen process, which, however, presupposes that the operator is an experienced hand. The exposure for this process is five to eight minutes, in good sunlight. The following is a very good formula:

Distilled water	300 cubic centimeters.
Bichrom. of ammon.	5 grams.
Albumen	50 cubic centimeters.
Cologne glue	5 grams.
Ammonia	8 cubic centimeters.

Much more might be said on the subject, but the above will contain plenty of material for the thinking and progressive worker.

Users of lantern slide plates will be interested in the following letter, which speaks for itself:

Concord, N. H.,

John Carbutt, Esq., Wayne Junction, Philadelphia.

Dear Sir,—In my work, which takes me over New Hampshire, I find occasion to use the Stereopticon a great deal. I make my own slides from my own negatives, and of the lantern slide plates used I have found yours the most satisfactory. It certainly speaks well for your plates that not a single imperfect one has thus far been discovered, and I have used hundreds of them. Yours truly,

(Rev.) A. T. Hillman,
Secretary The New Hampshire Home Missionary Society.

THE British Journal Almanac for 1898, with its wealth of tables, formulas and general information, and its maze of advertisements, making in all a book of over fourteen hundred pages, is before us, and is fully up to its predecessors in the standard of real value and interest; and, speaking of predecessors, we are reminded that it has had a great many, and the present volume must come into the high numbers, although there is nothing that we can find to indicate whether it may be Volume I or L, and the title-page itself was only found after a careful search of many minutes, embedded as it is in the advertising matter. Of course every one knows that the *British Journal Almanac* is all right when gotten at; but, really, wouldn't it be nice if one did not have to lose so much time in getting at it? Published by Henry Greenwood & Co., London.

Photography Annual for 1898, published by Iliffe, Sons & Sturmey, London, is also received, and is another of the English annuals that has come to be looked for as a compendium of useful and valuable matter photographic. The present volume is well stored with articles of value and is finely illustrated with collotype, half-tone and color inserts, and is printed with the good taste that has distinguished its several earlier numbers.

Liesegang's Photographic Annual for 1899 has also come to hand. It is printed in the German language, and, though it may not be so attractive to many of our English-speaking readers for this reason, it will highly commend itself to those conversant with the German language, and will prove a valuable addition to any technical library.

The Photographic Journal (English) for September includes the illustrated catalogue of the forty-third annual exhibition of the Royal Photographic Society, and this catalogue is to be commended most highly for its artistic get-up and the high quality of its illustrations, which are in all cases reproductions of work shown in the exhibition. The choice of subjects and the handling of them in the way of composition is something that our readers on this side of the water would do well to study.

In Nature's Image, by W. I. Lincoln Adams, is a new work just published by the Baker & Taylor Company, of New York, profusely illustrated with original photographs from Nature, and treats the subject of pictorial photography principally from the points of the portraitist. The illustrations are made up from the work of such men as Puyo, Alex Keighley, John E. Dumont, H. P. Robinson, Pentlarge, Stieglitz, J. Craig Annan and others well known to the fraternity. The book is printed on very heavy paper with wide margins, and is a fine example of the printers' art.

We have received from the Manager of the Department of Publicity and Promotion of the Trans-Mississippi International Exposition a very interesting series of photographs of the aboriginal American. These photographs were made under the official sanction of the Government, and show the prominent Indian characters who were present at the encampment in a very interesting and instructive way.

"Odd Times" is the name of a new comer in the ranks of photographic literature and is published by the Camera Club of the Manual Training High School of Brooklyn.

The work on the paper from the editorial department to delivery, including composition, press work and binding, is done by students in the school, and, from advance sheets that have reached us, reflects great credit on the staff.

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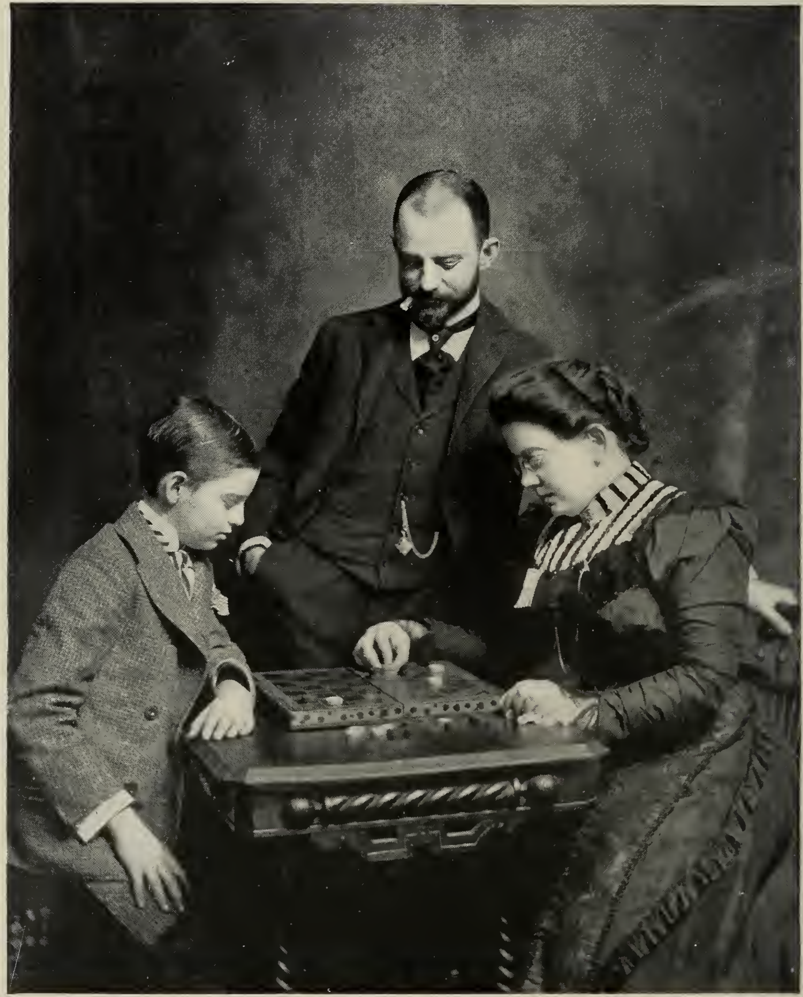

Photographed by
W. H. HOFFMAN,
Savannah, Ga.

Engraved by
GEO. H. BENEDICT & CO.,
Chicago.

A CONVENTION PRIZE WINNER.

P. A. OF A., 1898.

ANTHONY'S

Photographic Bulletin.

EDITORS:

Prof. CHARLES F. CHANDLER, Ph.D., LL.D.
W. I. SCANDLIN.

Vol. XXIX. DECEMBER, 1898. No. 12.

1898-1899.

ANOTHER year is rapidly drawing to a close, and looking over the records that it presents in the photographic field, we are not confronted with any startling discoveries or announcements, but, on the contrary, with the single exception of some of our specially endowed seers of the lay press, who peripatetically announce the successful discovery of one or another process or method, which unfortunately has to be discovered all over again at a later date, the progress along photographic lines has not been especially marked.

Kite photography has advanced somewhat, and we shall be surprised if it does not receive an added impetus before many months; that it was not more in evidence in our late Spanish war has been a matter of astonishment to many.

Submarine photography claims rather more attention than formerly, and X-ray photography has become a regular adjunct to surgery and clinical work.

Dr. Russell's investigations and discoveries are, perhaps, among the most prominent advances of the year, and have opened up a wide field of research that will yield largely in the future.

The growth of State associations of photographers throughout the Union, and the success attending the efforts of the Photographers' Association of America, are doing much toward raising the standard of photographic and artistic excellence in the work of this country, and the results will be made apparent as soon as the business conditions are more firmly established for good, which, from present indications we believe will be at no distant day.

The field of photography is a wide one, and in it are vast possibilities of discovery and achievement as yet undreamed of. May the coming year be rich in results, and may we all benefit by the experiences of our fellow laborers whose successes and failures as well, are so freely made available to us by the photographic press of the world.

The Bulletin offers to its readers its best wishes for the season, and for a prosperous year to follow, assuring them that its policy will

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continue to be a helpful one in every way possible, gauged only by the ability of its editors; much can be gained, however, by close touch between reader and editor and exchange of views and ideas are of value to each.

The BULLETIN hopes to have the strong support of its readers in this way throughout the coming year, as only thus can it hope to remain "The Leading Photographic Journal of America."

PYRO DEVELOPER.

Editor of Anthony's BULLETIN:

DEAR SIR,—In response to your inquiry as to what developer we use, would say that we are now using, and have been for a long time, a developer that suits us better than anything we have ever seen for general results.

Of course we have always been able to make negatives that were all right, apparently. They always looked to have plenty of strength, vigor, etc.; but what we were after were negatives that would produce prints. We do not consider a negative of any value that will not yield a satisfactory print, therefore we never decide upon the value of a negative in experimenting with developers until we have the finished print from the negative before us.

We have tested, during the last five years, every new developer that has been put on the market. We have produced negatives with all of them that were beautiful to look at, but the majority of them we found useless when we came to get our prints out.

We finally settled down to the idea that there is nothing like pyro, and we have also arrived at the conclusion that the formula we have been working with for a long time is an excellent one. The fact is, we have found no other developer to equal pyro for all kinds of work and uniformity of results.

The formula here given is the one we like best of all, and, if properly handled, will give negatives of the finest printing qualities for Aristo Platino:

No. 1.

Carbonate potash	2½ ounces.
Sulphite of soda crystals (hydrometer test, 40)	10 "
Water	64 "

To develop:

No. 1	1 ounce.
Dry pyro	16 grains.
Water	3 ounces.

We use the pyro dry, because we always get the full strength of it, and consequently, more uniform negatives.

We use two trays in developing, one of them containing the normal developer, as given above; in the other tray, the same developer, but with double the quantity of pyro. We start our plates in the normal developer, and after the detail is well out, if it is not strengthening up properly, we immediately transfer it to the tray, with double the quantity of pyro, and keep it there until the proper density is acquired.

This developer works equally well on Seed, Cramer, Hammer, or Climax plates, giving clear, transparent shadows, high lights, with all the delicate half-tones which do not print hard or chalky; and negatives, strong (not hard), brilliant, and full of detail, and ones that will yield excellent prints on Aristo Platino paper.

MEACHAM & SABINE,
Youngstown, O.

Items of Interest

THE Texas Photographers' Association closed its first annual convention on the 23d of October, after a very successful and enthusiastic meeting. President Deane and his associates are to be congratulated upon the success of their movement of a year ago. There were three entries in the Grand Genre Prize Class, and three in the Grand Portrait Class. The officers of the association for the ensuing year are: President, W. H. Snell; Vice-Presidents, H. H. Morris, Clifford Church, Mr. Ragsdale and Mrs. Bennett. Frank Leffler, of Fort Worth, is Secretary, and W. D. Jackson, Sr., Treasurer. Dallas was selected as the place of the next annual meeting.

* * *

Messrs. Motes & Moore, of Atlanta, opened their studio on the 8th and 9th of November with an exhibit collected from all over the United States, and made up from many of the most noted photographs in the world, all of them having been, at one or another time, prize winners or medaled pictures at conventions. Enterprises of this kind are to be commended, as they serve to bring before the people of one's town or city the work of other artists, and also to stimulate business. The Bulletin would be glad to report more occasions of this kind.

* * *

It is said that photography is making exceedingly rapid strides in Japan, and that within the last number of years the Japanese have been steadily drawing on the photographic knowledge and literature of the world, and embodying it in their practice. A large number of wealthy amateurs in that country are actively engaged in the work, one such being reported to own the largest camera in the world, the dimensions of which are not given, however. With the expansion of the art under the conditions above named, and by one of the keenest and most intelligent races in the world, it would seem that we might look to Japan for important developments during the next few years.

* * *

Important advances are being made in the application of photography to medical uses from time to time, and one of the most recent is the reported successful application of electric light and photographic camera combined in a small flexible tube, which it is intended shall be swallowed by the patient undergoing examination, and by which photographs of the interior of the stomach tissues have been successfully taken. The camera is said to be a very simple affair, consisting of a little silver water-tight cylinder, with lens at one end and film at the other, arranged to accommodate itself to different focal distances, and to work in conjunction with the electric light, that serves as an illuminant.

* * *

Considerable space has been given in the lay press of late to a proposed plan for printing sheets of paper by the use of the X rays, and thereby doing away with the necessity of setting up type and printing from presses, this process having been first suggested by Georges Izambard, who is referred to as "a literary Frenchman." Inasmuch, however, as sensitized paper must be used for this work, beside the entire plant for the production of the X rays, and further, that, as the sheets at the bottom of the pile to be printed will, of necessity, be very badly blurred and indistinct, and, owing to several other objections which will readily suggest themselves to the mind of any one at all conversant with the subject, it is not believed that the art of printing as now practiced will be superseded at once.

* * *

The following letter from Professor W. K. Burton carries its own explanation, and all readers of the Bulletin and "Annual" will heartily sympathize with him and Mrs. Burton in their recent very severe and trying illness. We trust that the new year may bring about a marked improvement and entire restitution of the health of both.

Tai-Hoko, Formosa, Japan, September 24, 1898.

The Editor,
The International Photographic Annual,
New York, U. S. A.

Dear Sir,—Looking through a great number of letters that have arrived in the last few months, whilst I have been prostrated with Formosa fever, I find one of yours dated July, requesting a communication for Volume XI of your "Annual."

Alas! You must take the will for the deed this year. I write even now with very great difficulty. I assure you that I regret few things more than that I have not the honor of appearing in Volume XI of your "Annual," as I have been for so many years before.

Yours very truly,
W. K. Burton.

* * *

The importance of photography in the work of settling disputes and providing records for future generations has been taken up with active enthusiasm by the City of Boston, in its official capacity, and a number of photographers are regularly employed by the different departments of the city government in making these records, filing them away, or using them in the publication of the various city documents and department reports. The City Engineer and the Street Department employ a number of men upon this work, while the Police Department, under General Inspector William B. Watts, is preparing a large photographic studio, which will be fully equipped for the accommodation of those sitters who are forced to be candidates for the rogues' gallery. In addition to the regular photographers employed in this department, a great deal of work is done by professional men, who are hired specially for the work as occasion requires.

◆

It may not be generally known that a mixture of black lead, camphor and lard, in the proportion of 2, 20 and 125, respectively, is said to be an excellent preventive of rust, which so frequently attacks the polished steel of instruments, etc. It is well to keep this in mind when examining our burnisher rolls and cutting knives.

◆

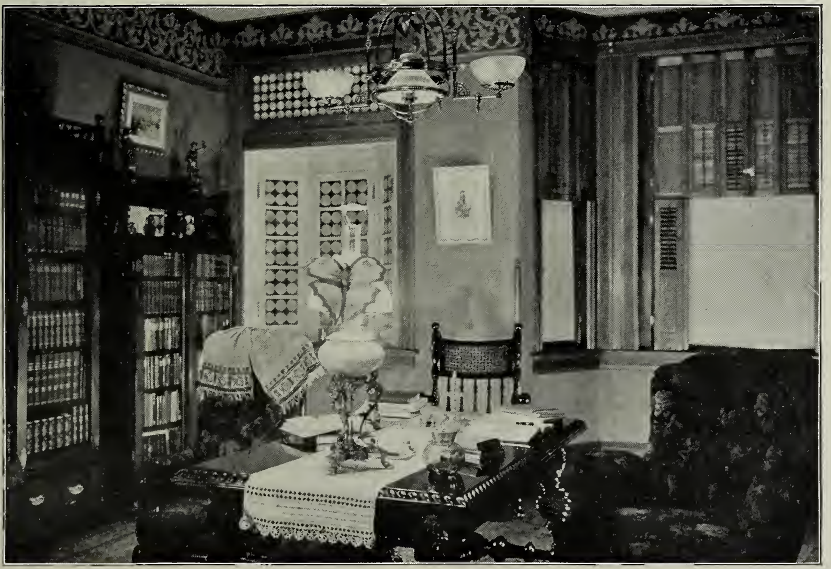
The Pittsburgh Amateur Photographers' Society desire to call attention to the fact that, in their coming salon, the announcement previously made that "nothing is to appear on the front of the picture," has been modified, and that this rule will not debar any good work from acceptance. In other words, that they will permit the exhibitor to sign his or her work.

PHOTOGRAPHING BY COAL-OIL LAMPS.

By Chas. A. Müller.

As the days become shorter, and "old Sol's" seductive rays weaker, the amateur, photographically inclined, will seek for means of finding amusement at his favorite art indoors.

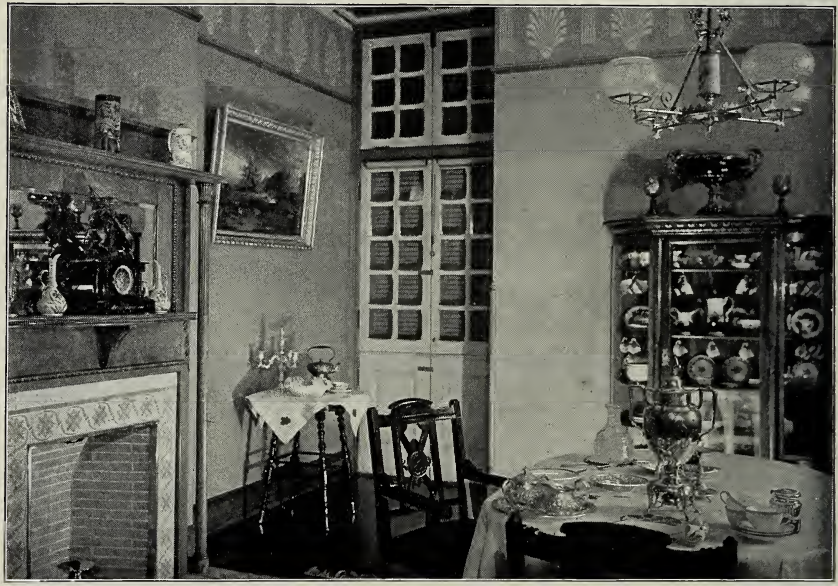
The long evenings are now spent in lantern-slide making, in the mixing and putting up of chemicals, in the mounting and assorting of prints, etc., etc.



Photographed by Chas. A. Müller. Illuminated by Lamp Light.

Many have found no end of amusement for themselves and for their friends in taking pictures at night by the aid of the magnesium flashlight, others with the electric and Welsbach lights, but I do not think that there are many who have used the coal-oil lamp alone. Naturally, the exposure is a long one, but the long wait is well repaid by the result.

My method of working is as follows: I took, in the instance shown in illustrations, four lamps of the Rochester pattern, with round wicks, placing them back of upholstered chairs and tables, so that the light proper, or flame, would not be seen on the ground-glass in focusing. I then focused sharply and exposed for thirty minutes, using stop *F*/16, Zeiss anastigmat lens, the plate used being Cramer isochromatic, instantaneous. I was very agreeably surprised at the result.



Photographed by Chas. A. Müller. Illuminated by Lamp Light.

Three other exposures under the same time and conditions gave the same gratifying results.

In the picture with lighted gas jet and lighted lamp on library table the exposure was thirty minutes before lighting them. Then I lighted the gas jet and lamp and again exposed for five minutes.

I should think that flowers and inanimate objects of interest could be very satisfactorily taken by the same means if the light were strongly concentrated on the objects. The hanging of curtains before the lights, in the manner in which paintings are shown in art exhibitions, might possibly give the desired effect.

If, by this short explanation, I have suggested anything to my fellow amateurs in the beautiful art of photography, I shall feel highly gratified.

DEVELOPERS.

By Richard Thirsk.

IN an article on developers, which appeared in the *Amateur Photographer* of October 28th, Mr. Thirsk, after speaking of the rush which almost always follows the announcement of a new developing agent, to try its qualities, says :

"Pyro still holds its place at the top of the list because as a thoroughly reliable developing agent it has no equal, and for ordinary work, whether it be used with ammonia or soda, it has been found to give the best results. Therefore I may be excused if I speak of it to the detriment of the others, and make a few experimental remarks about its relation with the above.

"Pyro-soda has of late grown in favor. One reason, among others, that it gives a brighter, clearer and more vigorous negative, without the risk of fogging as with ammonia. These advantages are not so apparent in practice. Pyro-ammonia will yield a negative with as good printing qualities, besides allowing greater latitude. True, there will always be a slight trace of yellowness in a pyro-ammonia developed negative, yet it may be doubted if that in any way affects printing. The less we complicate our developers, the better. Simplicity should be our aim. The man who despises this developer because it stains his fingers, or that because it has a nasty smell, is not the man who makes the most of photography, and may therefore be left out of count.

"With the following simple developer I have developed thousands of negatives, never once having found it at fault:

Stock Solution I.

Bromide potash	2	drams.
Water	6	ounces.

Stock Solution II.

Ammonia .880	2	ounces,
Water	4	"

Developer III.

Nos. I and II	½	ounce each.
Water	20	ounces.

"It is better to keep the pyro dry, especially when developing is only done occasionally, for in this state it keeps best, and we can tell exactly in what proportion we use it. For normal exposures add to 2 ounces of No. III about as much as covers a shilling (heaped). If slightly over-exposed, add a little more; if under-exposed, a little less. A very little practice will soon bring one into it, and if the same instrument is used for lifting the pyro (a spoon), you will soon work with comfort and certainty. Using dry pyro is old-fashioned, but it has the advantage of being always fresh. The simplicity of this developer is but one advantage. If the plate is under-exposed, first proceed to steep it in No. III for a few seconds before adding pyro, then develop in the usual way. In extreme cases of under-exposure No. III may with safety be heated a little more than blood heat, soak the plate in this for a few seconds, then add pyro gradually. A negative that has been subject to this severe treatment will show a bluish surface fog. Leave it for a few seconds in the following, after fixing:

Perchloride of iron	1 ounce.
Water	6 ounces.

"The fog will have disappeared; thoroughly rinse before washing. In this way plates may be saved that would otherwise have been hopeless.

"If the plate is over-exposed, add three or four times the ordinary amount of pyro; if very much over, add several drops of No. 1. This will retard the action and allow of manipulating so as to get the best results. The same applies if the faulty exposure is not known until development has begun. If it shows the usual signs of over-exposure, image comes up quickly, foggy and flat; rinse it with water and add more pyro, or, if required, bromide. If under exposed, pour off developer and flood the plate with No. III without the addition of pyro. If the deposit of pyro already on the film is not sufficient to give the required density, it will be necessary to add a little. If the shadows refuse to gain density, they may be helped by gently rubbing with the fingers or by breathing on them. After the plate has been developed, and before fixing it, place it in the following clearing solution (this will also remove stains from the fingers):

Alum	1 ounce.
Hydrochloric acid	1 "
Water	20 ounces.

"A few seconds will be sufficient, then rinse and fix.

"The old saw which says 'there is more done by dodging than hard work' is often true. If we wish to make the most of our developers we must study them thoroughly and methodically, get to know them, and when we have found a developer likely to suit our needs, stick to it. Shifting about from one developer to another is just so much waste of time, worry and expense, to say nothing of the miserable results. The above may seem somewhat complicated in theory; it is not so in practice. It is a developer largely used in the profession, it has stood the test of time, and, from long experience, I can thoroughly recommend it.

Photographed by MAXIMILIAN TOCH.

From Article in THE INTERNATIONAL ANNUAL, *Vol. XI, for 1899, on "Sunset Pictures."*

DIGNITY IN PORTRAITURE.*

By C. H. Hewitt.

As we look into the windows of nine photographers out of ten, we can scarcely feel proud that we are the fellow human beings of the people whose counterfeit presentments we behold. By the way, how is it that that word counterfeit has come to be used so often in this connection? We almost conclude that it is because there is something so false, ungenuine and undignified about the average photographic portrait—the characterless, conventional, over-retouched "usual thing," as Mr. H. P. Robinson christened it. We can hardly be brought to think, for instance, of all men at once wearing clothes fresh from the tailor; we can scarcely credit the uniformity of flesh texture which we see depicted; and when we observe the cuffs with their links, the watch chain, and the rings all so carefully displayed, we cannot but feel that there is not much difference between the half-naked savage strutting about in all the pride of a cast-off coat and a few feathers, and the highly civilized Englishman—that is, not much difference in natural vanity. We want to know how it is that men who would consider it snobbish to be calling attention to their clothes or adornments when in the company of their friends take care that these shall be displayed in the portrait. We have frequently noticed how anxious some fair clients are that their rings shall be sufficiently prominent. On one occasion a resitting was requested of us—it was a portrait of a child—because the new shoes were not *en évidence.*

Perchance the purely commercial man will say to all this, "What does it matter? Turn out the photograph and take the money. One must live." This may be all very well for those who simply follow the trade of photography as a means of earning a living; but one likes to think that there are many who take a higher view than this, and are anxious to produce the best of which the art is capable.

But to leave generalizations, and turn definitely to our subject. What constitutes dignity in portraiture, and how may it be achieved? Here, as in most other cases, true dignity appears to go hand in hand with simplicity. The too frequent demand for what has been styled the "pretty, pretty" on the part of the public, and the pandering to that uneducated taste, or lack of taste, on the part of the photographer, are together responsible for the present-day commercial portrait. The oft-quoted counsel tells us our habit may be rich—"but not expressed in fancy," and surely that innate good taste which dictates the ensemble of our apparel may be allowed to guide us in the production of our photographs. The great majority of photographers crowd too much into their portraits. A valuable lesson to learn is the art of leaving out. Schiller's remark, "By what he omits show me the master of style," has before now been quoted in this connection, but is a concentration of truth that will bear reiteration. If every portraitist had to produce pictures, not hackneyed repetitions, but pictures with variety of treatment, with nothing except a plain and rather dark background, and blinds and screens for controlling the light on figure and background, he would afterwards only be able, and would indeed only wish, on rare occasions to use accessories. Such a course of discipline would enable the earnest worker to secure variety of effect by the massing of his lights and shades, by securing the effect of space round the sitter, and in other ways, all of which would give individuality to the portraits, and a freshness never obtained by the crowding in of various accessories. Only the other day we saw the portrait of a public man. After the eye had wandered over bamboo furniture, plush curtains, plant pots, palms, ferns and pedestals, all more or less distracting and glittering, it caught sight of the figure, intended presumably to be the principal point of interest. Compare, mentally, [a strong, dignified pose, treated with extreme simplicity, illustration omitted.—Ed.] with some of these portraits crowded with accessories, and say if the easy, natural and dignified pose, broad and restful in treatment, is not infinitely preferable.

It must not be supposed, however, that the artistic use of even elaborate accessories is impossible. All that is essential is that they be, as their very name indicates they should be, accessory or secondary. They must be kept subordinate, and to this end they should not be allowed to disturb the general distribution of light and shade, nor the harmony of line. Perhaps we may add that they should neither be too ugly nor too beautiful. A lovely piece of furniture, especially if it be a new acquisition, is a great temptation to many a photographer. He wants it to be prominent. It may very fairly be said that the man who successfully uses many or elaborate accessories is a past master, and the great majority of workers will find that the best way of avoiding failure is to choose simplicity. We admire the village maiden much more when, in her print or muslin frock, she trips through the orchard, than when, with various fashionable enormities—too often incongruous in their juxtaposition—she is "dressed."

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* *The Practical Photographer*, November, 1898.

But "not expressed in fancy" is applicable to pose as well as surroundings. The strained, forced poses, so suggestive of affectation, are as unlovely as they are undignified. We are not pleading for the "straight-up-and-down," "square-on" figures, nor yet for the slouch with which some sitters seat themselves, requesting to be taken "quite naturally, you know." There is a great stretch between these and the overposed, twisted productions which are sometimes designated "study heads" and the like. Ladies in real life don't try to see their left elbow over the right shoulder! Graceful, simple, and easy poses, indicative of self-respect and common sense, are innumerable, and the more they are sought for, either generally in the house and street, or in each individual sitter when in the studio, the more readily will they be found. There should, whenever possible, be a *raison d'être* for a pose, especially if it be at all elaborate, and the most successful portraits are generally those in which pose is the outcome of some ordinary everyday occupation. In our own work we often observe poses on returning to the studio after changing plates. A slight modification may be required to aid balance or contrast, but this should be done in a moment, and the exposure made before stiffness appears. Mr. Valentine Blanchard has recently (*British Journal of Photography*, 1897, page 244) related his experience of the advantages of a dark-room window looking into the studio, enabling him to note the characteristic attitudes and expressions of his sitters, while he himself was unobserved.

The matter of detail is one of importance in portraiture which aspires to true dignity. The details of dress which must be included may be as objectionable in their undue prominence as ill-used accessories. This is a matter in which the photographer cannot do much unless he is seconded by the sitter. It is to be feared that many clients want photographs of the dress rather than a portrait which shall be a depiction of character. But given the co-operation of the sitter who will come suitably attired, and place him or herself in the photographer's hands, the due subordination of everything to the head may be attained by soft definition and suitable lighting. In large work it may sometimes be found necessary to soften contrasts in the dress by judicious work on the back of the negative

Possibly one cause of the monotony of portraits is to be found in the prevalence of "vignette heads." That these are constantly demanded may be true, and from the "bread and butter side" they must be done by the majority of professionals. The great advantage, however, of a plain portrait which allows the inclusion of more than the head and shoulders will be apparent. Even if a three-quarter length is not desired, a half length or something between that and the usual vignette bust permits a variety of position with consequent characterization. Further than this, the inclusion of more figure means the indication of character in clothes. Teufelsdrockh suggested that clothes made the man. Certainly they express a good deal as to his habits and peculiarities. How often we recognize a person by his hat or his coat when the face is turned away from our direction, and this very fact should teach the value of including in a portrait some considerable portion of the figure whenever possible. It may be well, perhaps, to observe that the undue accentuation of a characteristic, and especially of any peculiar or curious characteristic, produces a caricature. Whatever this may add in individuality, it will be no gain so far as dignity is concerned.

These remarks may be little more than a few suggestions on what is the grammar, as it were, of the art of portraiture. The successful worker is guided more by what he would call "feeling" than by hard and fast rules, yet underlying this "feeling" would be found a firm grasp of elementary principles.

The important matter of expression, and the subsequent treatment of the negative by way of retouching, affect the dignity of the portrait very greatly, but these are questions the consideration of which must be left for a future occasion.

A NEW METHOD OF OBTAINING STEREOSCOPIC RELIEF BY LANTERN SLIDES.

By Rev. F. C. Lambert.

MR. T. C. PORTER (Eton College) drew attention at the Camera Club to a simple method of seeing lantern stereo pictures without any instrumental aid to ordinary eyes. This method he demonstrated to the satisfaction of many present by examples thrown on the screen. His method is simplicity itself. First, obtain a pair of stereoscopic negatives in the usual way. Then from them make a positive transparency, taking care to arrange so that that view seen by the right eye is on the left-hand side of the screen, and that the view seen in Nature by the left eye is on the right-hand side of the screen. [Be it observed that this is just the opposite way to that of placing the two prints to be viewed in an ordinary hand stereoscope. In this case, the view as seen by the right eye is on the right-hand side of the two prints, and the left-eye view to the left side of the mount.] Having so arranged the pair of pictures on the screen, and placing oneself as nearly as may be opposite the middle of the screen, and at a moderate distance, say 20 or 30 feet away, then take two small, short tubes of paper and hold them, one to each eye, in such position that the right eye only can see the left-hand picture on the screen, and the left eye only see the right-hand picture. This being done, the stereoscopic effect of relief and solidity should ensue. To get the best effect, it may be necessary to reduce or increase the distance between the screen and the spectator. Mr. Porter assures us that we quite easily dispense with even these little paper tubes. One need but to hold up a finger, pencil or other object at convenient distance from the eyes and look at this object; that is to say, the eyes must be converged, as though squinting, but the attention given to the picture. Mr. Porter goes further and says, that not even need we hold up any object, but that after a very little practice one can converge the optic axes of the eyes and yet give attention to the two pictures. Nor will any evil effect or inconvenience follow this way of using the eyes. The degree or angle of convergence depends upon circumstances, but can be found by the "single experiment" of holding up some object at different distances. A moment's thought will show one that the nearer one goes to the screen pictures, the greater the angle of convergence, *i. e.*, the nearer must the assisting object or imaginary point be to the two eyes.

CURIOUS PHOTOGRAPHIC PHENOMENA.

By P. C. Duchochois.

As a preamble to the curious photographic phenomena further on described, I think it is not out of place to recall some of the experiments made years ago by Möser, of Königsberg, Robert Hunt and Nièpce de St. Victor.

In 1842, Möser communicated to the French Academy of Science his investigations on the formation of the Daguerrean image by simple contact on iodized silver plates. Then, if, in the dark, one places on such a plate medals, coins, and even non-metallic objects during a certain period, on their removal, and after submitting the plate to the vapors of mercury, their image appears sufficiently distinct to recognize the figures, the letters, etc., of these objects. Furthermore, Aschersohn, by repeating, with success, the experiments of Möser, demonstrated that the images were also reproduced when the objects were placed at a distance of 1 millimeter from the iodized plate.[*]

From these and other experiments, Möser concluded that—

First.—Two bodies constantly impress their images on each other, even in complete darkness.

Second.—All bodies radiate light in the dark.

Third.—There exists latent light as well as latent heat.

Robert Hunt attributed these phenomena to the radiation of heat. He mentions in a paper published in *Philosophical Magazine* for October, 1840, some instances in which he copied printed papers and engravings on iodized paper by mere contact and exposure to the influence of the caloric rays, or to artificial heat.[†]

Lastly, Nièpce de St. Victor has reproduced engravings, previously exposed to the action of light, by applying them in the dark on a sensitive albumenized or collodionized plate for a certain period, then developing in the usual way.[‡]

All this is indeed very interesting, but still more remarkable is the photography of the effluences which the magnetizers pretend to be constantly evolved from the human body. It is what they call magnetic fluid, neuric and odic effluences. They also state that the subject perceives this fluid flowing from the fingers of the operator like water from a watering pot, and that he even distinguishes the different colors of the fluid according as it emanates from one or the other side of the body, red from the right, and blue from the left. Likewise, he perceives the same flux at the pole of a magnet and on the surface of a liquid where a chemical action is taking place. In fine, a person in a state of hypnosis would always perceive an evolution of effluences when looking at organized bodies. These singular perceptions do not seem to be new, for one remarks on the monument of ancient Egypt the image of Vishnu, with flames at the extremities of the fingers.

Is all this in the imagination of the hypnotized, or is it a reality?

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[*] See *Comptes Rendus* for July, 1842.

Philosophical Transactions, Part 1, 1840. See also Robert Hunt's *Photography*. London, 1851.

[‡] *Bulletin de la Société Française de Photography*, 1857, p. 366.

If the effluences act on the eye of the hypnotized, why should they not be detected by photography, that Argus which sees the invisible? If so, it would be probative. The late Dr. Luys made some experiments in that direction with the collaboration of Mr. Davis, and obtained very strange photographs, which he presented to several scientific societies as the image of effluences. The experimenters placed, without pressure, their fingers on a sensitive plate immersed into a developer, and an image soon made its appearance ; at the point of contact there were complex figures—curves, radiations—which the magnetizers ascertain to be the photography of the magnetic fluid. But, observed Dr. Gebhard, to produce similar images it suffices to exert a slight pressure on the gelatine film ; if one replaces the fingers by five small pieces of wood they will also be produced, and even lines resembling those of crackled porcelain appear when the plate is immersed into a developer left in repose. Also, if on the gelatine an object is placed in the vicinity of another, the image is modified in its appearance, the lines most often diverging in every directions. Any contact, any pressure on the gelatine film causes the apparition of the image.

If it is the contact which determinates the formation of these images, instead of placing the fingers on the sensitive film, let us place them on the verso of the plate, then the effluences, if any, will go through the glass and make their impress on the film. And a plate being placed film downwards on small wooden supports, to prevent it from touching the bottom of the tray, an hydroquinone developer was poured on so as to cover it, the fingers were placed on the bare glass for about ten minutes, when on the plate, fixed in the usual way, a well-delineated image appeared ; on a black ground, the tips of the fingers were quite visible, and around them radiated black lines very close at first, then blooming in very curious ways.

It is not the heat from the fingers which produces the image, for nothing appears, when, for example, a glove filled with mercury heated to 40 degrees Cent., is applied on the back of the plate. Mr. Brandt, who made these experiments, placed various objects on the plate and nothing appeared.

An experiment was also made with a magnet—persons under the influence of the magnetism fluid assert that it emits certain effluences. After ten minutes of contact the sensitive film showed a complex image nearly similar to that formed by placing iron filings upon a sheet of paper above a magnet.

However remarkable are these experiments, it would be premature to conclude, although it seems that the images in question are due to effluences ; but they are certainly worthy of calling to the attention of experimenters, for, if they are due, in reality, to the radiations from the hand, one will be in presence of new phenomena of great importance in physical biology.

As it is, the photography of effluences will become a pastime as interesting as any other. The amateur, by photographing his fingers, those of his friends, of persons of every age and of various states of health, and comparing the results, may obtain unforeseen results leading, perhaps, to a new diagnostic. Anyhow, the experiments are worth being made.

By the process lately devised by Dr. Gebhard nothing is so simple as to reproduce on a gelatine plate typographic clichés, medals, coins, vegetable impresses, any object having a small relief, without the aid of the camera.

Here is the manner of operating:

In the dark, one places, without any pressure, a medal on the sensitive film previously veiled, that is, rapidly exposed to the light of a candle, and upon it a developer—diamidophenol, metol, hydroquinone, etc.—is poured so as cover it. Now, it is evident that the developer will come in contact with the film only where the medal presents some hollows, and, consequently, that the blackening, or reduction, will be proportionate to the depth of the hollows. Hence, after a certain period, when the medal is removed and the plate washed, the image of the medal will be positively impressed, the blacks corresponding to the hollows and the grays to the reliefs. It will afterwards suffice to fix as usual, then to make a negative by contact, and from it positive proofs on paper.

Hence, there is no process as simple and practical to make photographs from clichés in intaglio and from engravings in relievo The effect will be reversed. One directly obtains a negative, and consequently, from it, as many positive proofs as may be desired.

The process of Dr. Gebhard is exceeding sensitive, and allows one to detect on any object the smallest hollows as well as the smallest reliefs—imperceptible streaks, invisible undulations. It may be utilized in physical researches, and even in legal expert work.

COLLODION DRY PLATES.

By Henry Thiry.

FOR the reproduction photographer it is of great importance to possess a good process for the quick production of collodion dry plates. Regarding fineness of grain and gradation, they are still unsurpassed.

The first process, finding a great practical application, was invented by Taupenot, and the following is his own description of it:

"The application of the wet collodion process is limited. To obtain good results, the plate must be developed before it dries. Bad illumination will give no good results, because we have to expose too long. Experiments were therefore made in all directions, to remedy this defect. Some tried to keep the collodion film for a longer time in a moist condition by adding to the collodion substances like syrup; others tried resinous substances, or treated the sensitized and well-washed plate with bodies absorbing oxygen, like tannin."

Taupenot's process is, generally speaking, the albumen process. However, instead of spreading the albumen directly upon glass, it is spread upon a collodion film. The albumen penetrates the pores of the film, and in this way prevents the numerous small dust spots, a defect, which is suffered by the pure albumen process of Nièpce de Saint Victor.

Preparation of the Glass Plates.—Plates already used for this process are put into a strong potash lye. The adhering albumen will dissolve quickly. Afterwards the plate is thoroughly washed and placed on the rack to dry. New plates are laid for a few hours into a solution of water, bichromate of potassium and sulphuric acid. They are then washed under the faucet and dried. The plates have to be as carefully treated, as in the wet collodion process. They are cleaned with iodine in alcohol, and afterwards rubbed over with talc. The collodion which is used for this process may contain either iodide and bromide salts, or only iodide salts. In the latter case, however, only alkalic bromide and iodide salts should be selected, and no iodide or bromide cadmium should be used. The collodion has to be pretty thin. The following formula gives about the correct proportion:

Sulphuric ether, 62 degrees	100	cubic centimeters.
Alcohol, 96 degrees	25	" "
Collodion cotton (made at high temperature)	1	gram.
Iodide ammonia	1	"
Bromine	0.25	"

The collodion cotton must be prepared at high temperature, because it will furnish a more porous film. Old red collodion, which has lost almost all sensitiveness, can be used without any disadvantage, but it has to be very thin. The glass plate is now coated with collodion in the ordinary way, and sensitized in a silver bath of 7 or 8 per cent. To this bath is added from 8 to 10 per cent. of glacial acetic acid. After sensitizing, the plate is washed under the faucet, and is then coated with albumen.

Taupenot's formula is the following:

Fresh egg albumen	90	cubic centimeters.
A few drops of ammonia.		
Iodide of potassium	0.70	gram.
Bromide of ammonia	0.70	"
Water	30	cubic centimeters.

Davanne's formula is:

Fresh egg albumen	120	cubic centimeters.
Iodide ammonia	1.10	gram.
Bromide of ammonia	0.35	"
Ammonia	10	cubic centimeters.
White sugar	3	grams.
Water	20	cubic centimeters.

The albumen is beaten into a foam, left to precipitate, and is then filtered. An ordinary egg contains about 30 cubic centimeters of albumen. Instead of precipitating and filtering, it may also be treated with sugar and yeast. To 100 cubic centimeters of albumen, 1 gram sugar and a little beer yeast is applied. Shake several times, and leave the bottle in a warm place of from 25 to 30 degrees Celsius. Carbonic acid will soon form, which throws off foam to the surface. A small quantity of alcohol will also form, which coagulates some albumen. After about twenty-four hours the liquid is decanted and carefully filtered. To promote the durability of the collodion, a small quantity of camphor is put into the bottle, which should be provided with a glass stopper. The vapors of the camphor remain on the surface of the liquid, and act as a preventive against the air from coming in contact with the collodion, and spoiling the same.

The plate is flowed several times in all directions with the iodide-albumen solution, and is then left in the darkroom in a dry place, free from dust. In consequence of the superfluous alkalic iodide salts, the collodion iodide silver film underneath has become almost non-sensitive, so that the plate can be exposed to daylight, but this should not be too bright. It is, however, better not to do this, as a light fog might easily appear. If the former sensitiveness is to be returned to the plate, the sensitizing is done in the following bath:

Nitrate of silver	70	grams.
Glacial acetic acid	50	cubic centimeters.
Water	1,000	" "

In this bath the albumen will coagulate, and iodide and bromide of silver will form anew, which is sensitive to light.

The plate is thoroughly washed and dried in the darkroom. It is more sensitive than the pure albumen plate, and less sensitive than the wet collodion plate. It will keep for a long time.

These collodion dry plates are specially used for glass diapositives for projections, diapositives for heliogravure, and also for small microscopic views in penholders, watch charms, etc.

The plate can be exposed by contact or in the plate-holder, and it is best to develop immediately. If the plate is left untouched for some days, the latent picture will disappear. Before developing, the plate is rinsed under the faucet, that the developer may act better on the film. The following developing formula is mostly used:

Gallic acid	3	grams.
Pyrogallic acid	1.50	"
Glacial acetic acid	15	cubic centimeters.
Water	1,000	" "

Some practical photographers add acetate of soda or acetate of potassium; others, again, apply acetate of lead. The solution is heated to 70 degrees Celsius, and the development is rapid and uniform. After some minutes of development, a few drops of a 3 per cent. nitrate of silver solution are added, and the same quantity of glacial acetic acid. After finishing the development, the plate is washed thoroughly under the faucet.

Many operators prefer to develop the plates film down. For this purpose, four pieces of lead are put into the tray, which have the form as in Fig. 1. With this manner of development a plate-holder is used for the purpose of taking out the plate at any time. The fixing is done in hyposulphite of soda. Cyanide will destroy the film.

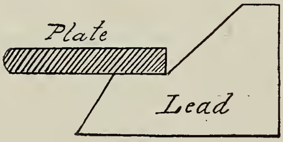

Fig. 1

The plates prepared after Taupenot's process will stand no alkalic developer; the film is always attacked and destroyed.

Translated by
HENRY DIETRICH.

THE COPYING OF PAINTINGS BY PHOTOGRAPHY.

[Notes of a Lecture at the London Camera Club.]

By Rev. F. C. Lambert.

EVERY photographer, be he amateur or professional, sooner or later wants to copy some colored picture, diagram, or similar object. He will do well to take the advice of Mr. E. Sanger Shepherd, who has made the subject of orthochromatics a special study. For the general convenience of the reader and to facilitate ready reference, the jottings are arranged under separate headings.

1. *Lens.*—The lens should be one giving fine definition and a flat field. Those of the Cooke type, Zeiss Planar, planagraph of Clement & Gilmer, Ross, Portable symmetrical, are all commendable.

2. *Focusing.*—As an aid to centering, divide the focusing screen into four parts by two straight lines joining middle points of opposite sides; also a few lines parallel to the margins of the screen are helpful.

3. *Lighting the Picture.*—If the picture be very dark (*e. g.*, old dark oil painting), then direct sunshine will probably give best results. For an ordinary water-color (light and bright), diffused daylight is often best. If artificial light be used (*e. g.*, lamps), do not place them (as is often done) one on each side of and close to the camera and away from the picture. This plan often gives rise to troublesome reflections. It is better to place the two lamps one on each side of and fairly near the picture. In the case of miniatures and other objects under glass (flat or curved), troublesome reflections may come about. These may be overcome by one of two methods. The object may be reflected in a black mirror, and by rotating the camera to suitable angle, the light becomes more or less polarized; or the employment of a Nicol's prism in the lens brings about the same end.

4. *Copying Engravings, Etc.*—The lecturer recommends a small stop, blue screen, plate giving good density; a full exposure and liberal development, even to the verge of clogging the fine lines. The fine lines are then opened out again with a brief bath in a fairly strong potassium ferricyanide and hypo reducer (Farmer's).

5. *Preparation of Color Screens.*— The subject of color sensitiveness was fully gone into, with accompanying diagrams. The following is an efficacious and simple

Photographed by R. Aspa.

From an Article on Warwick Castle, in The International Annual, *Vol. XI, for 1899.*

way of preparing a series of color screens or color filters: An ordinary gelatine dry plate is well fixed and well washed, leaving only a layer of clear and transparent gelatine on the glass. An aqueous solution of the dye stuff is prepared, and the plate soaked in it for five, ten, fifteen or more minutes (the longer time giving it deeper tint). The plate is then quickly rinsed and dried. Should the dye stuff be insoluble in water, it may possibly be dissolved in alcohol and added to plain collodion, and a piece of clean glass coated therewith.

Most, if not all, the following dyes are soluble in water, and are all useful: Aurania, brilliant yellow, brilliant green, fuchsin, uranine (multiple yellow), naphthol yellow, phosphene, theosin red, chrysoidin, methyl violet, 6 B, ethyl purple, naphthol green.

6. *Darkroom Light.*—This is a most important point. Each plate must be studied. The way to set about it is to photograph the spectrum with the plate and develop in total darkness. Examination of the plate will indicate what color region is the less effective on the plate. Light of this color is obviously the least likely to harm the plate. Some plates may be developed with comparative safety in a green light, others in yellow orange, others in only the far red. For plates sensitive throughout the whole length of the spectrum, with a falling off in the far red region, the following combination is very commendable: First, a clean gelatine plate is dyed in aqueous solution of naphthol yellow (as just described above). A second plate is in the same way dyed in aurantia. These, when dry, are placed film to film. Finally, one of the outer glass sides is coated with a layer of collodion containing methyl violet 6 B. These three colors cut out all the spectrum except a narrow band in the extreme red.

7. *Development.*—This, again, is a vastly important point. For convenience, we may group developers into two chief classes. The first, of which metol is an example, gives us a flash-out image all over the plate. The image is, at first, very thin all over, but, prolonging development, we get satisfactory gradations full up. The second class, of which hydrochinone is a familiar example, is of an opposite character. The parts most affected come out first, and it is only after prolonged immersion in the developer that we get out the detail in the darks. In dealing with colors with such developers, first come the blues, then greens, and finally reds, so that if the development be at all shortened, the reds may not be represented at all. On the whole, then, for orthochromatic work, developers of the metol class are to be recommended.

One caution is necessary, viz., that the quality of different kinds of light must be kept in mind. If we are going to use a certain plate for copying by, say, gaslight, then we must test it by a spectrum from gaslight, and adjust our photographing and darkroom screens, also, with this illuminant in view; also, that the fundamental idea of a color screen or filter for exposing is not that of culling out a certain color, but of diluting its action, keeping it back, handicapping, as it were, so that other slower-acting parts can catch up.

COLOR THEORIES.*

THE modern scientist teaches that the elementary or primary colors composing a ray of sunlight are red, violet, and green. The old theory adopted red, yellow, and blue as the primaries, and the majority of the common people to-day still cling to the latter conception, because, whilst it is not, strictly speaking, scientifically correct, it is practically so, in combining pigments. The modern scientist tells us that he can mix red and green and produce yellow; but he has reference to color sensation, not color pigment. Anybody must know how utterly impossible it would be to mix red and green paint together and get yellow from it. Green is partly yellow, but the blue is also very distinct in it.

Thus it will be seen that the idea of color has two interpretations. Where we get at sea is where we suppose that blue pigment is identical with blue light, and so on. Now, the spectrum colors alone are absolutely pure ; the pigments never are pure colors, however pure they may be as pigments. Otherwise it would be quite possible to take blue, red and yellow pigments and produce white paint by mixing.

Sir Isaac Newton was the first to give us a true conception of the nature of color. He admitted a ray of sunlight into a dark room through a hole in a shutter, the light being directed through a prism and by that refracted against the opposite wall, where it showed what we call the prismatic colors, namely, violet, indigo, blue, green, yellow, orange, and red. By this analysis the edges of the colors merge one into the other, not showing distinct lines of separation ; but by a more elaborate contrivance, not necessary to describe here, this is avoided and the bands show clear-cut.

Now to determine the purity of each of these colors of the spectrum, each color is made to pass through a prism by itself. If the color was composed of two or more colors, as is the case with secondary colors, then the prism would undoubtedly show it by separating the colors.

It may be asked why we speak of only three primary colors, when the spectrum shows seven. The answer is because when we manipulate paints we find that by adding red to blue we get violet ; indigo is a dark blue ; green is yellow and blue combined ; orange is yellow and red. We cannot take any other colors and by admixture produce red, yellow or blue. The old Brewster theory explains more accurately the matter of pigment-color making than the scientifically correct modern theory, which better explains things pertaining to light and its colors.

The spectrum analysis, then, teaches or illustrates the source and some of the character of color. Color is a possibility only of light. No light, no color. Pure, full sunlight, pure full color. A poor light, artificial light, moonlight, these give poor colors, and darkness none at all. Hence color is not an inherent property of substance, but an effect, a result of something acting upon that substance, and that is light. Newton's experiment has demonstrated for us that a ray of light is composed of a set of color rays. United these form white light.

Next, there comes in for a share of attention some knowledge of color vision. One may explain all phenomena of color perception by supposing that each surface element of the retina consists of three constituents, each of which when affected causes a different color sensation. On this supposition all the various shades of color are resultant of three fundamental sensations, originating in those constituents. Young proposed red, green and violet as the fundamental sensations, and a self-evident conclusion was that the sensation of light is the resultant of the simultaneous action of all three constituents. What we recognize as color is color sensation or perception. In the vibratory theory of light we find the root of this matter. The vibrations of least amplitude excite blue or violet. There is a point at each end of the spectrum beyond which the eye cannot respond to the vibrations.

The air, which is the medium of conveying sound, might be compared with luminiferous ether pervading all space. But the ether's movements are undulatory, though the waves may cross and recross each other in every direction. The luminiferous ether is capable of imparting its thrill to other substances.

What we know of color is in connection with this wave theory of light. In red there are some 40,000 waves to the inch, these striking the eye at the rate of 447 millions of millions of pulsations per second. In violet there are 57,000 waves to the inch, and 690 millions of millions of pulsation per second. Between these extremes of the spectrum are colors of other wave lengths.

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* *The Optician and Photographic Trades Review*, November 3, 1898.

It will be seen that color is a sensation. A flame possesses color to the eye that sees it, otherwise it is simply invisible combustion, a chemical process.

CORRECT COLOR-SENSITIVE PLATES.*

By George Hindlesham.

TO anyone fully acquainted with the use of orthochromatic plates and their many advantages over the ordinary, it must seem strange that they have received comparatively so little attention.

Most of the new processes and improvements in photography have been eagerly taken up and fully worked to a very high standard of perfection. This, however, has unfortunately not been the case with orthochromatic work, about which many otherwise excellent photographers seem to know so little, both as concerning its employment and results.

Many of the reproductions appearing in our best magazines would not be possible without the aid of orthochromatic photography, and the colored supplements which are part and parcel of nearly all self-respecting periodicals nowadays are still more dependent on its aid.

So long ago as 1883, a patent was granted to Tailfer & Clayton for an orthochromatic process; but the plates were not put on the market, I believe, until about 1886 by Messrs. B. J. Edwards & Co., who early recognized the important advance which had been made in photography by this patent.

From The International Annual, *Vol. XI, for 1899.*

Those who first took up this branch of the subject had to prepare the plates for themselves, and as this was, and is, a matter requiring great care and some little skill, they were not much used by any but those of more than ordinary enthusiasm and ability.

During the first few years the plates which were put on the market were found to be very slow, and did not possess anything like the keeping qualities that characterize the ordinary plate. This is not so at the present time, however, as they may now be obtained capable of giving excellent results from almost any photographic dealer, and at prices very little (if any) advanced on those charged for ordinary plates.

It must be that plates which are found to give very much better negatives of colored objects will, sooner or later, be exclusively used for this purpose.

For several years fully 90 per cent. of the plates I have exposed have been orthochromatic ones, and my experience has been that they are infinitely better for most purposes (if not all) than the ordinary, which, is, after all, more or less of a makeshift; at any rate, where strongly colored objects constitute the chief portion of the photographer's work.

Many people seem to think that the use of them on subjects in monochrome is useless, if not positively harmful. In many instances there is a distinct advantage in using them, even for subjects in monochrome, especially if they happen to be prints on yellowish stained paper. In a dull, yellow light, too, orthochromatic plates are often considerably quicker than the ordinary.

The word orthochromatic, to some people, is suggestive as an extra strain on the purse and temper. It seems to be understood that color-sensitive plates must be worked by a light that would disgrace a donjon, and ending with great uncertainty in results, in return for a very considerable amount of trouble.

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* *The Photographic News*, October 28, 1898.

It is with the hope of refuting this idea that this article has been written.

As concerning the light, I have never found necessary one differing much from that in general use with other plates; in fact, I always use the same, and turned down a little below its normal intensity, combined with the extra precaution of keeping the developing dish covered as much as possible during at least the earlier stages of development. Of course this does not apply to plates specially sensitized by cyanin or some other substances for the red rays. It is, nevertheless, very important that there should be sufficient light to clearly see the image as it appears, as it is often necessary to modify the result by additions, etc., to the developer.

The fact that the negative of a landscape subject is a little brighter on the reverse than the original is not of the greatest consequence, but in copies of paintings, etc., it is necessary that the photograph should represent, not only all the gradations of the original, but that it should be pitched in the same key.

If ruby fabric be obtained of good quality and thickness and used double, it will be found safe for most brands of orthochromatic plates, under the conditions mentioned above, in not exposing them to the light more than is absolutely necessary, artificial light being, of course, meant as the illuminant,

I have always changed plates when away from home by the light of an ordinary folding ruby lantern, and have never been troubled by the plates fogging.

This will, perhaps, cause surprise to some who have advised that orthochromatic plates be manipulated in the dark, and the development conducted under purely mechanical principles.

I have spoken with amateurs who have exposed hundreds of plates, and yet look on those having orthochromatic qualities as only to be indulged in by the very expert.

Many otherwise fine photographs are sometimes spoilt by the complete absence of clouds, or an unsuccessful attempt to artificially introduce them, which requires a considerable amount of experience and skill, and is, even then, not always entirely all that could be wished. By the use of an orthochromatic plate, exposed behind a suitable color filter, it is very often possible to obtain the natural clouds in landscapes if a little care is taken in judicious development. Some very fine results have been obtained near sunset by this method that could not have been obtained in any other way.

It is very instructive to expose a few ordinary and orthochromatic plates on the same subjects, and compare them. To those not acquainted with the use of the latter, the results will, in many cases, cause considerable pleasure and surprise in favor of the orthochromatic negative. Even without a screen, a great advantage will be noticed in the results obtained on color-sensitive plates, particularly as regards the yellow and green rays; and, with the addition of a properly selected screen, of course, the result is often still more perfect.

The only disadvantage that I have ever found in the use of orthochromatic plates on a landscape subject is when the distance is desired to show but very faintly, in order to give atmosphere to the photograph. As this is generally of a more or less bluish tint, the screen used for the foreground will sometimes bring the distance a little more forward than it should. But one is not compelled to use orthochromatic plates for such subjects, and they will only compose a small percentage of the whole.

One of the chief causes of failure in producing good negatives on orthochromatic plates with amateurs, is, I think, to be found in the excessive use of ammonia in the pyro and ammonia formulas. Some samples of these plates contain a small amount of free nitrate of silver in their composition, and an excess of ammonia will sometimes result in a slight reduction of metallic silver all over the plate. With such as these, it is convenient to use metabisulphite of potassium in the developer, and often a a slight increase in potassium bromide. Many makers of orthochromatic plates recommend development with pyro-soda, and this, no doubt, is very suitable, as it is not so liable to produce green fog in cases of under-exposure; but, unfortunately, there is not nearly so much control with this as with pyro-ammonia. Most of my exposures have been developed by the latter formula, and, in my hands, it has proved best of all. I invariably develop by adding the ammonia gradually as required, which gives you very much greater control over batches of exposed plates, of which some may be over and some under-exposed.

It is generally better to err on the side of over-exposure than the reverse, as it is not advisable to have to force them, and there is generally little difficulty in obtaining sufficient density with these plates.

Of course, if pyro-ammonia is found to produce green fog with any particular brand of plate, pyro-soda should be tried, and will generally be found to yield negatives much better in this respect.

In photographing interiors, orthochromatic plates are very valuable, as many of the hangings, chair coverings, carpets, etc., often reproduce much darker than they should, and give a rather heavy and unpleasant look to the result.

I have also found that color-sensitive plates are often less subject to halation, which, in itself, counts as no mean advantage.

Plates can be obtained which are sensitive to almost all the spectrum; but this, of course, makes them very difficult to work, and they are seldom necessary. If their sensitiveness extends into the red, it is generally sufficient, and if, for any particular purpose, plates are required for the red rays, they can be obtained specially for this purpose, and are usually developed in a rather faint green light. It is, however, not a bad plan to supplement the green glass or fabric by one thickness of red as an extra precaution.

It sometimes happens that marble statues, busts, etc., have colored marks and veins in them, and these, being generally of a yellowish color, often show much more than would be expected in negatives on ordinary plates. I have found orthochromatic plates yield much better results in such cases.

Those who procure a good brand of orthochromatic plates, and give them a thorough and fair trial, will be surprised at the comparative ease with which they may be worked, and convince themselves of their great superiority.

Photographed by Jos. F. Smith.

From an Article on Photography of Flowers in The International Annual, *Vol. XI, for 1899.*

All copy for January number must be in our hands not later than December 15th.

LANTERN SLIDE MAKING BY THE WOODBURY PROCESS.*

A PAPER BY MR. J. R. WILLIAMS READ BEFORE THE PHOTOGRAPHIC CLUB.

THE Woodburytype process is practically a method of obtaining carbon prints in glass or paper mechanically. The process is so little understood by photographers generally that I think a few remarks on the subject are likely to prove interesting to many.

It is not possible, in the short space of time I have at my disposal this evening, to give you a demonstration of the whole process, on account of the length of time each of the various operations takes. For example, the development is so slow that a piece of tissue that took only four hours to develop would be useless, as the mere fact of the development being completed in this time would be quite sufficient proof that it had been exposed too short a time to be of any value as a relief.

Some two years ago I had some fine negatives of Japan sent to me by Professor Burton. Now at that time there was a very great demand for any pictures or slides of Japan, so I was most anxious to get the slides made in the shortest time possible, and, although I had a powerful electric arc lamp placed at my disposal, I found I could not get the reliefs made and the slides commenced under ten days. * * *

There are few people who have not seen an ordinary carbon print developed, and who have probably noticed how the image or picture stands out in more or less high relief, the depth of this relief being regulated by two things: firstly, the quantity of pigment with which the gelatine of which the tissue is formed has been mixed; and, secondly, the duration of exposure to light. If a dried carbon print in high relief be placed on a block of soft metal, such as lead, and be then subjected to a heavy pressure such as one can readily obtain by means of the hydraulic press, the parts of the picture that stand out in relief will be forced into the soft and yielding surface of the metal and form a series of depressions, which will fairly represent the gradations of the picture; but a sheet of ordinary carbon tissue has but a thin coating of gelatine, and it would be impossible to obtain from it sufficient depth in the depression to yield a good print, and for this reason it is necessary to make a special tissue, the coating of gelatine on which shall be fully the thickness, when dried, of a thick postcard.

The method now in use is to collodionize large pieces of plate-glass, which have been previously carefully cleaned and then well rubbed with powdered talc. The collodion used should possess two qualities. It must be extremely tough and strong, and at the same time not too contractile. It cannot be made from any formula I know of with any certainty of being of first-rate quality. The plan I adopt is to get various samples of low-temperature gun-cotton and try them, and when I come across a sample that fulfills all the necessary conditions, I purchase enough to last a long time, as the collodion rather improves by keeping, if kept well corked in a cool place.

The plate to be collodionized is placed on a leveling stand and collodion poured upon it until the round pool formed in the center extends to every corner. It must then be allowed to set thoroughly, and it is well to see that, whilst setting, it is not exposed to any currents of air, or the plate will be sure to show wave-markings, and in some cases the film may crack.

When thoroughly set, it is washed for some time under a tap, until all signs of greasiness caused by the presence of ether and alcohol in the film have disappeared, as these would have the effect of preventing the gelatinous coating adhering properly. This done, the plate is warmed carefully in front of a fire or with a spirit lamp. It is then replaced on the leveling stand, and a mixture of gelatine, sugar, glycerine, bichromate of ammonia and pigment added in the following proportions:

Gelatine	100	parts.
Bichromate of ammonia	20	"
Sugar	20	"
Glycerine	20	"
Water	480	"

Indigo or india-ink enough to color deeply.

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* *Reprinted from Photography.*

As soon as the gelatinous coating has set, it must be placed in a box nearly filled with chloride of calcium, as it must be dried quickly, or it will become insoluble. In summer it will take one day to dry, but in winter it is apt to take from two to three days to dry.

When dried, the tissue is stripped from the glass plate (this is easy enough if the talcing of the glass has been well done), and cut up into suitable pieces with a knife or a pair of scissors. It is then placed under the negatives (which, as in ordinary carbon printing, need to be provided with safe edges), and exposed to light. The exposure in the best light in the month of June may, perhaps, not need to be longer than half an hour, but ordinarily it requires much longer.

An exposure can be gauged by means of an actinometer, for, although, unlike carbon printing, it is possible to see the image on the tissue, and thus to tell when the printing has gone far enough, it is not well to open the printing frame often, as the tissue absorbs moisture, and then prints unequally.

The tissue now has to be developed, and, as it would curl up and be very unmanageable if left to itself, it is customary to attach it temporarily to a piece of glass or a piece of zinc, grained by immersion in a mixture of nitric acid and alum. It is attached to either of these supports by means of a solution of india-rubber in naphtha. This is poured over the plate, and allowed to dry for about four hours. The tissue is then placed, with the collodion side downwards, on the plate, and passed between rollers. For this purpose the family washing machine rollers answer very well.

The plate is now placed in a dish or tank containing water heated to about 100 degrees Fahr., and, after it has been in water of this temperature for an hour, and the greater part of the uncombined bichromate has come out of the tissue, the water should be changed, and the temperature increased to 120 degrees, or even 150 degrees.

When the development is completed, which may easily be known by the appearance of bare collodion in the highest lights, the plate should be rinsed with hot water, and then dipped in cold water, and set to dry. When dry, the film must be most carefully stripped from the rubber support, and placed either on a book or under a weight, so as to keep it flat. It ought to remain a day or so before pressing into the lead, otherwise it is apt to crack.

In making the mould, the relief is placed, collodion side downwards, in a sort of shallow steel tray, the sides of which are bolted together. A piece of soft lead is then placed upon the relief, and a pressure of about six tons to the inch is applied by means of the hydraulic press, which usually suffices to impress the image into the surface of the metal. The pressure is left on for about a minute to allow the lead to flow, and the sides of the tray prevent any lateral extension, which would soon burst the relief to pieces.

The tray or chase is then unscrewed, and the lead taken out. The relief is easily detached from it, and can be used several times. The lead has now to be planed at the edges, and, at the same time, any flaws caused by spots on the negative can be removed by means of a sharp chisel. In printing from the mould, a press is used which gives a truly parallel motion. The mould is attached to the base of the press by putting a few drops of the warm gelatinous fluid we call ink.

The surface of the mould is then well oiled, and, after the superfluous oil has been rubbed off with a piece of chamois leather, it is ready for printing. An ink, composed of, say, 50 grains of gelatine to the ounce of water, and colored with India ink to suit the depth of the relief, is poured upon the mould, and then a piece of plate glass, which has been previously warmed, so as to avoid chilling the ink, is placed upon it, and the lever of the press is lowered so as to exert a moderate pressure.

In this room the ink would take about ten minutes to set, the time of setting depending on the quantity of gelatine in the ink, or the temperature of the room. The cooler the room, the less gelatine would be needed.

When the gelatine has set, the glass can be taken up by inserting a point of a knife between it and the mould.

CLOUDS AND SUNSET.*

By P. R.

WHAT is more attractive to an audience of people at a lantern lecture than an effective colored sunset, especially if taken at the seaside with the reflections on the rippling waves? Yet, how often do you see them at any ordinary lantern exhibition? You may show an average audience view after view of excellent scenery and technically perfect slides, and they will be appreciated to a certain extent; but show them something striking, plenty of contrast, and, if colored, all the better. Intermingle in your lecture a few sunsets or fine cloud effects; it breaks up the constant, one may almost say, monotony of views, and your lecture will be all the more acceptable when finished.

I remember some time ago giving a lecture on a tour in Devon and Cornwall, and for the end of which I had a set of slides representing a wreck, supposed to have been seen by me off the coast of Devon. They were a set of about twenty slides, taken at different times of the year, but so arranged as to come one after the other, with due regard to light, etc. The first represented the commencement of the setting sun, a fine cloud effect, with breaking waves, and rocks, etc., then in the next few slides the sky gradually darkened, and the storm, which had evidently been slowly brewing, came on and at last broke with terrible violence. When it had somewhat subsided, through the mist an old ship appeared, which in the following three slides appeared bigger and bigger, until the next one (which had been specially prepared) showed her tossed on the waves; some sand, rocks, etc., completed the picture.

After a few minutes the old ship was seen to break up; first the masts and rigging fell on to the deck, the bow and then the stern sank lower and lower, until there was nothing of her left, the clouds and rocks only remaining.

Then followed the closing scene, with the waves gradually subsiding, and the clouds giving way to darkness and night, which scene concluded the lecture.

This part of the lecture was very much more applauded than the other; and I think striking incidents of this kind add far more to the success of the evening than a constant series of views the whole evening through.

The sinking ship effect was obtained by combining two slides—one with the clouds, waves, rocks, etc., on, and the other was simply an old ship resting on some rocks.

About an hour before the lecture the slide with the old ship on was placed in water for half an hour to get throughly saturated, then allowed to stand and partially dry. The two were then roughly bound together, the film of the ship placed outside instead of inside, and put into the lantern next to the condenser, so that the full heat of the lamp would fall upon it first. The consequence of this will easily be seen. The great heat coming from the lamp would melt the gelatine, causing the old ship to totter and sink, creating much amusement among the audience, to whom it was something quite novel, *à la* cinematograph without the quivering, leaving the other slide, which, of course, was quite dry, remaining on the screen when the ship had disappeared.

But to return to the subject of the article. A watery-looking sunset never takes well, neither does one which is mainly composed of yellow and red clouds. They may look glorious in all their colors and tempt one, but unless taken with a screen, etc., they are often very disappointing.

Study the forms and composition of them. Some nights they seem to arrange themselves far better than others. I have gone out and secured four or five, more or less good effects in one evening, and other times I have waited without seeing one worth taking. Take a piece of blue glass with you. It is exceedingly useful to examine them with, as it does away with all the brilliant colors, and consequently gives one a better idea how they will look in the resulting picture in black and white. It can be easily made by fixing without developing an ordinary plate, washing and dipping in a solution of ferricyanide of potassium and a few drops of ferric chloride.

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* *The Photographic News.*

When taking cloud negatives it is generally advisable to wait until the sun has disappeared behind a cloud, if taking direct against the light. Flare spots are thus avoided, and better effects obtained. It is not necessary to stop down to your smallest stop and give an instantaneous exposure, as some seem to think. If you do, you entirely lose aerial perspective, at the same time getting detail which you certainly never saw while taking them.

Use an open stop, and aim for masses rather than detail. In fact, in some cases there is a decided advantage if they are put just out of focus.

As to the exposure, of course that will all depend on the kind of cloud you are taking; generally speaking, one-half to one-twentieth of a second will be sufficient, but if you are taking dark rolling clouds one second will be about right.

Over-exposure is the great thing to guard against; err on the side of under-exposure if in doubt.

If, when taking a view, there happen to be some suitable clouds you like to secure on the same negative, the following dodge I have often tried with success. When taking the cap off the lens to expose, release it from the bottom first, then, using the top as a sort of hinge, move the cap slowly until you get to the horizon line, then give the sky as short an exposure as possible and quickly recap.

Slow or medium isochromatic plates rich in silver are the plates to use to get the finest effects (although films would be more convenient, as they would be used from either side); of course, they would be backed.

When developing, use a weak developer with a slight excess of pyro, and get a well-graduated negative with it, and yet avoiding too harsh contrasts.

Development should not be carried too far, or a fogged plate will be the result, which should be especially guarded against. It is surprising how quickly they do come up, even in a weak developer, and unless very careful when examining, particularly if isochromatic plates, they are almost gone before you can get them washed and into the fixing bath. Again, they sometimes get stained with the pyro, and their printing qualities are considerably altered. This can easily be removed by immersing in an alum and acetic acid clearing bath ; in fact, I always rinse mine in one after fixing to be sure of getting rid of all yellowness, which, if developing by gaslight, cannot easily be distinguished, but its effect comes out plain enough on the lantern slide. Besides, the alum bath hardens the film, and there is no fear of frilling during washing.

There are few views which are not improved with the addition of some suitable clouds, and many a poor negative can be turned into a good slide with a good sky effect. They should be printed on separate slides, and the two bound together, the cloud one forming the cover glass, after reducing all necessary clouds that come below the horizon line. The plan is such a simple one that nobody can have any excuse in showing a glaring white sky on the screen, utterly spoiling what might have been a good picture ; and yet, notwithstanding this, with the exception of some few, we still see the same white blank skies at our lantern meetings month after month.

Returning to the storm effect, it is surprising how interesting a set of slides of this description are—say a shower of rain, a passing storm, an evening's sunset, sunrise, etc.; a well-chosen foreground of the sea, rocks, etc., taken at different times from the same spot, with the waves dashing over them, and a few good sky effects to be combined with the foreground, to follow one another successively, illustrating the beginning and ending of the storm. If a ship can be introduced, all the better, but she should look as if she was prepared to weather a storm. I mean, it would not do to have the sun shining, and all her sails spread out, when the clouds indicate dirty weather.

In each successive slide the ship would either gradually recede and drop out of the picture altogether, pass from one side to the other, or advance into the foreground. In that case advantage could be taken of the dodge already spoken about —her complete destruction by the gelatine film melting, or else she could advance, growing larger and larger, and pass out at the corner of the picture as it were.

The foreground would grow darker as the storm gets on till very little of it can be seen ; then the storm could either pass off or give place to darkness and night.

The addition of a little color, if well done, would give more effect and improve everything.

Various other scenes will, doubtless, suggest themselves to the reader's mind in one form or another.

Of course, the whole thing would be for the amusement of the audience, and not for the critic, who might find one or two little faults. However, properly carried out and a little trouble exerted over it, it forms a very pleasing finish to an evening's entertainment.

JOTTINGS FROM GERMANY.

FIREPROOF Paper Reflectors.—To take pictures by electric light, screens or reflectors are required to promote a more intense light power. White paper, in connection with some woven fabric, is most suitable for a reflector, from the fact, that metal screens will oftentimes cause disturbing reflections on account of their gloss, and the negative, particularly an autotype negative, will have an unsatisfactory and injured appearance. As such a paper reflector cannot stand the heat of an incandescent lamp, and to give it better durability, it is of advantage to prepare it in the following bath:

Phosphoric acid	1,000	cubic centimeters.
Ammonia	500	"
Borax	25	"
Sulphate of zinc	35	"

Borax and the sulphate of zinc should first be each separately dissolved in 75 cubic centimeters of water, and afterwards united. The solution, which becomes cloudy hereby, is cleared again by the ammonia, which is next to be added. The phosphoric acid should be added last.

The Washing of Gelatine Plates.—P. von Jankó has made some pretty close studies regarding the washing of gelatine plates, and has found that the plate should be submitted to a much longer washing, than generally accepted, and that washing in running water is by no means the most rapid and rational. Of course, if we subject the water to one of the well-known tests upon soda thiosulphate (fixing soda), it will be found after a relatively short washing, that the same is free from thiosulphate, but this test is not ruling for the condition in the gelatine film, because it takes about two hours, as proven by Jankó, before the concentration of the salt solution within the film has become so evenly balanced with the concentration of the salt solution outside of the film, that a diffusion no longer takes place. It is known that the uranium intensifier, if the negative to be intensified was not well washed, will give a uniformly foggy coating, and as long as this red fog appears during intensifying with uranium, the plate will not be liberated from the soda thiosulphate. Jankó therefore used the uranium intensifier as reagent upon the purity of the film.

The result of these experiments is, that three times a change of water is sufficient to reduce the thiosulphate in the film to a quantity that cannot be proven by the uranium intensifier, if 2.5 cubic centimeters of water are applied to each plate measuring 1 square centimeter, and the water is changed only every two hours. In this way only 7.5 cubic centimeters of water are required for each plate of 1 square centimeter, but it takes six hours. With 10 cubic centimeters of water for 1 square centimeter plate, that is, with four times a change of water, changing every hour, four hours' time are required. A plate, however, can be washed in fifty minutes, if the water is changed ten times during intervals of five minutes each.

Therefore, the consumption of water will then be 25 cubic centimeters per 1 square centimeter plate. The washing in a tray with a regular change of water might be the most economical, because in running water the washing does not proceed in the same proportion as before, with frequent change of water.

Translated by
HENRY DIETRICH.

SOME NEW METHODS OF DEVELOPING DAGUERREOTYPE PLATES AND OF PHOTOGRAPHING ON COPPER.

By Colonel J. Waterhouse, I. S. C.

FEW photographing processes are, perhaps, so dead at the present day as the daguerreotype process. It seems to have quite gone out since the introduction of collodion, which, in its turn has been superseded, for ordinary purposes, by the universal gelatine dry plate.

It appears at present exceedingly unlikely, therefore, that daguerreotype, as such, will ever come to the front again, unless the conditions of working are very much changed.* For photo-mechanical purposes it has the advantage that a negative or reversed image is produced directly on a metallic surface, and therefore, if some means could be found of strengthening this image to enable it to be etched directly and sufficiently deeply, use might be found for the process in photographic engraving, either in relief or intaglio. Many attempts were made in the early days of daguerreotype with this object, but they never came into practical use owing to the very slight acid-resisting power of the deposit and the softness of the silver coating.

At the time of the Exhibition at the Crystal Palace I devoted a good deal of attention to daguerreotype in connection with the proposal to use it for taking portraits during the exhibition, but a delicate process of the kind cannot be picked up at once and we were unable to practice it successfully.

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*Since this was written Mr. Snowden Ward has told me that it is still being successfully worked by a firm in Chicago.

Since then I have continued working at it from time to time in order to ascertain the best conditions for success and whether it would be possible to make some improvements by the light of modern methods.

I have succeeded in developing passable images on the silvered plates with ordinary developers, both of the acid and alkaline types. This result is of some interest because it shows that the bromo-iodide formed by exposing the silver surface to the fumes of iodine and bromine has much the same properties as the bromo-iodides produced by double decomposition, and the latent images formed on it can be developed by the same developers as are used for collodion or gelatine plates. In fact, by treating the silvered plates very much in the same way as a wet collodion plate, with an acid iron or pyrogallic acid developer, an image of some density is obtained in deposited silver, which is very slightly different in appearance from the ordinary daguerreotype image developed with mercury. It appears positive with white lights and dark shadows. If, however, an alkaline dry plate developer is used, the character of the image is quite changed, and it appears negative, the deposit on the true lights showing dark upon a light ground. The image is also very thin—being apparently entirely superficial and not a deposit, though it could, no doubt, be intensified.

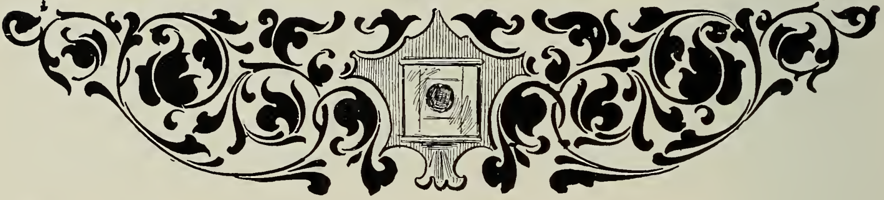
Before going into the details of the method of producing these results by development, it may be as well to make a few general remarks upon the manipulation of the daguerreotype plates, which may be useful to other workers in the same direction. I have myself found considerable difficulty in getting any very definite information about the *rationale* of the process or the actual practical manipulations. Mr. Pouncy very kindly lent me some of the old manuals from which I was able to pick up some useful hints. I am also indebted to Messrs. Matheson, Foxlee and Crofton for help and advice. The thanks of the Society are also due to Messrs. Negretti and Zambra, and particularly to Mr. E. Zambra for the help they gave us in placing their studio at our disposal and in other ways.

Success seems to depend largely upon the careful balancing of the proportions of iodine and bromine, and these again are greatly influenced by the prevailing atmospheric conditions and temperature, as well as by the quantity of sensitizing material placed in the dishes, the depth of the latter and the time the plates are exposed to the fumes. Time must also be given for the removal of the excess of iodine or bromine after sensitizing, either by absorption or evaporation. Experience and practice alone can teach. What has struck me most is the failure to obtain the very great sensitiveness which we know that the early Daguerreotypists obtained. In my experience the process at its best is much less sensitive than wet collodion and more like moderately sensitive dry collodion plates. My shortest exposure for a good plate in the Crystal Palace studio was forty-five seconds, with full aperture of a 2B Dallmeyer portrait lens. For outdoor subjects with one of the modern landscape lenses, a Ross-Zeiss working about $f/9$, exposures vary from one to five minutes or longer.

Apparatus.—It is not necessary to say much about the apparatus, which will be found described in most of the older text books. A double fuming-box is required for the iodine and bromine. Those fitted with reflectors seem to have been preferred by some of the old workers, but I find it better to work by an examination of the plate itself, either in a weak daylight or the bright yellow light of the darkroom in which I work. One soon gets accustomed to the appearance of the plate.

(*To be continued.*)

SOCIETIES



THE Minneapolis Camera Club held a very enthusiastic demonstration meeting during the latter part of November, and feel that they have entered upon an era of great prosperity. The membership of the club is constantly growing. The officers for the ensuing year are: President, H. E. Murdock; Vice-President, W. H. McMullen; Treasurer, J. F. Schlimme; Secretary, C. J. Hibbard.

The Oregon Camera Club has just held a very successful print exhibit.

The first photographic salon of the Photographic Society of Philadelphia, which has just been given under the combined auspices of the Photographic Society and Academy of Fine Arts, proved itself most successful in every way. The standard of excellence in hanging may be judged from the fact that, out of over fifteen hundred prints offered in competition, only two hundred and fifty-nine were selected for exhibition. The Board of Judges was made up of Messrs. W. M. Chase and Robert W. Vonnot, painters; Miss Alice Barber Stephens, illustrator, and Robert S. Redfield and Alfred Stieglitz, photographers. It will be remembered that prizes were not awarded, but that the simple acceptance of the work by this jury constituted in itself the recognition of artistic value, which was so eagerly sought by all.

A collection of photographic portrait work, by Mr. W. M. Hollinger, has lately been held at the rooms of the Camera Club of New

York. This exhibition showed Mr. Hollinger's characteristic work in large variety, and was highly appreciated by those who viewed it.

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The annual meeting of the Photographic Section of the Hartford Scientific Society was held on the 1st of November, on which occasion the following officers were elected for the ensuing year: Chairman, Charles R. Nason; Secretary, Miss H. M. Olmsted; Treasurer, Mrs. E. L. Williams.

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The annual meeting of the New Orleans Camera Club was held on the 2d of November, with a large attendance, and resulted in the transaction of important business. New members are coming in rapidly, and the club is in a fair way for a very prosperous continuance. The following officers were elected for the next year: President, P. S. Benedict; Vice-President, Bernard C. Shields; Secretary, George Gowland; Treasurer, Henry C. Delery.

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The New York Society of Amateur Photographers was founded upon the 3d of October, 1898, with the following officers: Walter G. Pierson, President; Harry N. Butler, Vice-President; Charles F. White, Secretary and Treasurer.

The International Annual of Anthony's Photographic Bulletin and *American Process Year-Book* for 1899, Vol. XI of the series, is now published in its usual neat and tasty covers, and is fuller than ever of good things for the photographer, be he amateur or professional.

Prominent among the purely technical articles are the following: Special Treatment of Hand-Camera Exposures, by A. D. Guthrie; Development of Under-Exposed Plates, by Frederick Thomas Bennett; The Fixing Bath, by Alfred Stieglitz; An Article on Bromide Paper, by Frederick G. P. Benson; Enlarging from Small Hand-Camera Negatives, by Robert J. Hillier; Description of an Apparatus for Showing Stereoscopic Transparencies, by Eli Hirst; Cloud Printing, by Martin J. Harding; Finishing Platinotype Prints, by W. Cooper; Selection and Care of Lenses, by Harold Serrell; Photo Surveys and Topographic Rambles, by S. E. Kelf; What to Photograph, by Matthew Surface; Modification of an Old Method for Making Panoramic and Stereoscopic Photographs, by O. G. Mason; Photography for Decorators, by C. W. Canfield; Tank Development, by J. M. Nichol; Naval and Military Use of Kite Photography in Time of War, by William A. Eddy; The Color of the Finished Print, E. L. Bowlus; F. 7 7–10, by H. Wenzel, Jr.; Photo Surveys and Surveying by Photography, by J. H.

Harvey; Sunset Pictures, by Maximilian Toch; Photography of Flowers, by Joseph F. Smith; Determination of Focal Length in Photogrammetry, by Commandant V. Legros; Hand Cameras, by L. V. Kupper; Photomicrography with Dark Field Illumination, by W. H. Walmsley; The Printing Quality of Negatives, by W. Lansing; The Platinotype Process, by J. Gaedicke; On What Distance Shall We Focus Sharply, by F. Paul Liesegang.

Among the articles of a descriptive and historical character, together with suggestions for fields of work in this and foreign countries, will be found: A Photographic Trip to Holland and Germany, showing the Possibilities of a Hand Camera, by H. Pickering; Bayham Abbey, by Joseph Chamberlain; Northumbrian Borders, by George Kilburn, and a very interesting article on Warwick Castle, by Signor R. Aspa, this latter being another of his series of articles on historic English localities, several of which have appeared in previous volumes of the "Annual"; The Water Front of New York City, by C. M. Giles; On the Golf Links with a Hand Camera, by Miss Adelaide Skeel; A Holiday Ramble, by M. W. Thompstone; New York City in Summer, by Walter Sprange.

A very large number of these articles are illustrated with half-tone cuts in the text, some of them very profusely, and in the Process Department are articles by A. C. Angerer, H. D. Farquhar, P. C. Duchochois, Charles Gravier, Max Levy, C. B. Talbot, F. A. Ringler and Romyn Hitchcock.

The tables and formulas in the "Annual" this year are, as always, full and complete, and the list of photographic societies larger than ever. Besides a very large number of text illustrations throughout the work, amounting to nearly two hundred plates, it contains thirty-nine full-page illustrations, in addition to a frontispiece printed by photography direct. To those who already possess previous volumes of this "Annual" it is, we think, needless to suggest the importance of obtaining this number, but to those who have not seen previous numbers we would say that the volume is complete in itself and forms a valuable acquisition to any photographic library. Price in paper, 75 cents; postage, 15 cents extra. Cloth binding, $1.25; postage, 20 cents extra. Published by E. & H. T. Anthony & Co.

PHOTOGRAMS of '98, being the fourth volume in the series, published by Dawbarn & Ward, Limited, London, is before us, and is, as its title-page sets forth, a pictorial and literary record of the best photographic work of the year. The work is a very careful compilation of criticisms and reviews of the principal photographic exhibitions and conventions in London, Paris and the colonies during the past year. It is beautifully embellished with half-tone engravings of some of the principal pictures exhibited, and will prove of interest and value to all lovers of photographic work. It is fully up to the standard of its predecessors, and in some respects surpasses them.

ANIMATED PICTURES, by C. Francis Jenkins, of Washington, D. C., has been received for review, and will fill an important place in the history of the development of chrono-photography, its present scientific application and future possibilities and the methods and apparatus employed in the entertainment of large audiences by means of projecting lanterns to give the appearance of objects in motion. The book is printed in a very attractive style and bound in cloth, containing one hundred and eighteen pages of historical, descriptive and suggestive matter, with chapters on photographing on films, development, their printing, perforating, coating and projection, together with formulas and working directions. To those interested in the study of animated photography this book will be of value and interest.

THE MAGIC LANTERN JOURNAL AND PHOTO ENLARGER ALMANAC AND ANNUAL for 1899 is just published, edited, as usual, by J. Hay Taylor. It contains a large number of articles full of useful information to the worker with the lantern, treating of various lights with the use of the lantern and its accessories in general. It is well supplied with formulas, and contains in all two hundred and sixteen pages of valuable matter.

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